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EDMC #: 0070637
SECTION: 2 OF 2

DOCUMENT #: N/A

TITLE: Draft 331-C Storage Unit Dangerous Waste Permit

xiii. Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.H.5.c.ii. and Permit Conditions III.10.H.5.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the Administrative Record.

III.10.H.5.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified below for incorporation into Attachment 51, Appendix 9.18 of this Permit, except Permit Condition III.10.H.5.e.i., which will be incorporated into Attachment 51, Chapter 6.0 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.H.5.b., c., d., e., and f., III.10.C.3.e. and III.10.C.11.b., as approved by Ecology:

i. Integrity assessment program and schedule for the LAW Vitrification System shall address the conducting of periodic integrity assessments on the LAW Vitrification System over the life of the system, as specified in Permit Condition III.10.H.5.b.ix. and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)].

ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours [WAC 173-303-640(4)(c)(iii)]. Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours. Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(b).

iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)].

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the LAW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

v. Description of procedures for investigation and repair of the LAW Vitrification System [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(v), and WAC 173-303-806(4)(a)(ii)(B)].

vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit Tables III.10.H.A and III.10.H.B, as modified pursuant to Permit Condition III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-systems.

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste as specified in WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

viii. A description of the tracking system used to track dangerous and/or mixed waste generated throughout the LAW Vitrification system, pursuant to WAC 173-303-380.

ix. Permit Tables III.10.H.C and III.10.I.C shall be completed for LAW Vitrification System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b., and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii. shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

x. Permit Tables III.10.H.A and III.10.I.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste LAW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 9.0 subsections (e.g., 9.1, 9.2, etc.) designated in Permit Conditions III.10.H.5.b., c., and d. specific to LAW Vitrification System sub-system as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

III.10.H.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit for review and receive approval for incorporation into Attachment 51, Appendix 9.15 of this Permit, a Demonstration Test Plan for the LAW Vitrification System to demonstrate that the LAW Vitrification Systems meets the performance standards specified in Permit Condition III.10.H.1.b. In order to incorporate the Demonstration Test Plan for the LAW Vitrification System into Attachment 51, Appendix 9.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan shall include, but not be limited to, the following information. The Demonstration Test Plan shall also be consistent with the information provided pursuant to Permit Conditions III.10.H.5.b., c., d., and e., III.10.C.3.e., and III.10.C.11.b., as approved by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of this Permit. The documentation required pursuant to Permit Condition III.10.H.5.f.x., in addition to being incorporated into Attachment 51, Appendix 9.15, shall be incorporated by reference in Attachment 51, Chapter 6.0 of this Permit.

Notes: (1) The following should be consulted to prepare this Demonstration Test Plan: "Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the Hazardous Waste Incineration Guidance Series," (EPA/625/6-89/019) and Risk Burn Guidance For Hazardous Waste Combustion Facilities," (EPA-R-01-001, July 2001), WAC 173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40 CFR §63.1209, and Appendix to 40 CFR Part 63 EEE.

(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b., c., d., e., and III.10.C.3.e.v., as approved by Ecology, that are redundant to elements of the Demonstration Test Plan for the LAW Vitrification System is acceptable.

i. Analysis of each feed-stream to be fed during the demonstration test, including dangerous waste, glass formers and reductants, process streams (e.g., volumes of air leakage including, control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from LAW Vitrification Vessel Ventilation System, process water, etc.) that includes:

   A. Levels of ash, metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates;

   B. Description of the physical form of the feed-streams;

   C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration;

   A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melters must be provided that documents that the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides.

ii. Specification of trial principal organic dangerous constituents (PODCs) for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.H.1.b.i. and III.10.I.1.b.i. These trial PODCs shall be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

iii. A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

iv. A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

v. A detailed engineering description of the LAW Vitrification System, including:

   A. Manufacturer's name and model number for each sub-system;

B. Design capacity of each sub-system including documentation (engineering calculations, manufacturer/vendor specifications, operating data, etc.) supporting projected operational efficiencies (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.H.1.b.;

C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross sections) and General Arrangement Drawings;

D. Process Engineering Descriptions;

E. Mass and energy balance for each projected operating condition and each demonstration test condition, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record;

F. Engineering Specifications/data sheets (materials of construction, physical and chemical tolerances of equipment, and fan curves);

G. Detailed Description of Automatic Waste Feed Cutoff System addressing critical operating parameters for all performance standards specified in Permit Condition III.10.H.1.b.;

H. Documentation to support compliance with performance standards specified in Permit Condition III.10.H.1.b., including engineering calculations, test data, and manufacturer/vendor's warranties, etc.;

I. Detailed description of the design, operation, and maintenance practices for air pollution control system;

J. Detailed description of the design, operation, and maintenance practices of any stack gas monitoring and pollution control monitoring system;

K. Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.H.1.b.ii. through III.H.1.b.ix. to seven (7) percent oxygen,. or a request, pursuant to Permit Conditions III.10.C.9.e. and III.10.C.9.f., to update Permit Conditions III.H.1.b.ii. through III.H.1.b.ix., III.I.b.ii. through III.I.b.ix., III.I.1.e.iii., and III.H.1.e.iii., Permit Tables III.10.H.C, III.10.H.F, III.10.I.C., III.10.I.F.and Attachment 51, Appendix 9.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

vi. Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed sample

method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision

vii. A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors;

viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the LAW Vitrification System to meet performance standards specified in Permit Condition III.10.H.1.b.;

ix. A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information shall also include submittal of Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F completed with the information as specified in each column heading for each LAW Vitrification System waste feed cutoff parameter and submittal of supporting documentation for Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F set-point values;

x. The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.H.1.b. with the simultaneous operation of all three (3) melters at capacity and input from the LAW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the LAW Vitrification System off-gas treatment system and to establish the corresponding operating parameter ranges. To the extent that operation of one (1) melter or two (2) melters can not be sustained within the operating parameter range established at this maximum load, additional demonstration test conditions must be included in the plan and performed to establish operating parameter ranges for each proposed operating mode while demonstrating meeting the performance standards specified in Permit Condition III.10.H.1.b.;

xi. Detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures;

xii. A calculation of waste residence time;

xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards as specified in Permit Condition III.10.H.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feedstream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

xiv. Documentation of the expected levels of constituents in LAW Vitrification System input streams including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-Leakage from melter cave, gases from LAW Vitrification Vessel Ventilation System, and process water.

xv. Documentation justifying the duration of the conditioning required to ensure the LAW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

xvi. Documentation of LAW Vitrification System process and leak detection system instruments and monitors as listed on Permit Tables III.10.H.C, III.10.H.F, III.10.I.C, and III.10.I.F to include:

A. Procurement specifications;

B. Location used;

C. Range, precision, and accuracy;

D. Detailed descriptions of calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures;

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.);

F. Equipment instrument control logic narrative description (e.g., software functional specifications, descriptions of fail safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

xvii. Outline of demonstration test report.

1

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Table III.10.H.A - LAW Vitrification System Description

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Melter 1 Feed Preparation Vessel LFP-VSL-00001[a], Melter 1 Feed Vessel LFP-VSL-00002[a], Melter 2 Feed Preparation Vessel LFP-VSL-00003[a], Melter 2 Feed Vessel LFP-VSL-00004[a], Melter 3 Feed Preparation Vessel V21301[a], Melter 3 Feed Vessel V21302[a] (LAW Melter Feed Process System)	LFP LCP	24590-LAW -M5-V17T-P0001 -M5-V17T-P0002 -M6-LCP-P0001 -M6-LCP-P0002 -M6-LCP-P0003 -MV-LCP-P0001 -MV-LCP-P0002 -MV-LCP-P0004 -MV-LCP-P0005 -P1-P01T-P0002 -P1-P01T-P0010 -P1-P01T-P0011	Section 4.1.3 & 4.1.3.1; Tables 4-4 and 4-11, and Figures 4A-1, 4A-3, and 4A-20 of Attachment 51, Chapter 4 of this Permit
LAW Melters LMP-MLTR-00001/2	LMP	24590-LAW -P1-P01T-P0007 -P1-P01T-P0009	Section 4.2.3.2; Tables 4-4, and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
LAW Glass Product Systems-Melter 1,2, & 3	LMP	24590-LAW -P1-P01T-P0007 -P1-P01T-P0009	Section 4.2.3.2 of Attachment 51, Chapter 4 of this Permit
Primary & Secondary Film Coolers-Melter 1, 2, & 3	LOP	24590-LAW -P1-P01T-P0002 -P1-P01T-P0007	Section 4.1.3.3 and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
Melter 1 & 2 Submerged Bed Scrubbers LOP-SCB-00001/2, Melter 1/2 SBS Condensate Vessels -VSL-00001/2[a], Submerged Bed Scrubbers/Condensate Vessels [a]-Melter 1, 2, &	LOP	24590-LAW -M5-V17T-P0001 -M5-V17T-P0007 -M5-V17T-P0008	Section 4.1.3.3; Tables 4-4 and 4-11, and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
3		-M6-LOP-P0001 -M6-LOP-P0002 -MK-LOP-P0001001 -MK-LOP-P0001002 -MK-LOP-P0001003 -MKD-LOP-P0002 -MKD-LOP-P0004 -LOP-P0002 -NID-LOP-P0003 -P1-P01T-P0002 -P1-P01T-P0007 -P1-P01T-P0010 -P1-P01T-P0011	
Wet electrostatic Precipitators-Melter 1, 2, & 3-LOP-WESP-00001/2	LOP	**24590-LAW** -M6-LOP-P0001 -M6-LOP-P0002 -MKD-LOP-P0008 -MV-LOP-P0001 -MV-LOP-P0002 -MVD-LOP-P0004 -MVD-LOP-P0005 -NID-LOP-P0001 -NID-LOP-P0002 -P1-P01T-P0007 -P1-P01T-P0011	Section 4.1.3.3 and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
High Efficiency Particulate Air Filters-LCP-HEPA-00001/2/3, LCP-BULGE-00002, LFP_HEPA-00001/2, LOP-HEPA-00001/2, LVP-HEPA-00001A/B, LVP-HEPA-	LCP/LFP/LOP /LVP	**24590-LAW** -M5-LVP-P0010 -M6-LCP-P0001/2 -M6-LFP-P0001	Section 4.1.3, 4.1.3.1, & 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
00002A/B, LVP-HEPA-00003A.		-M6-LFP-P0003 -M6-LOP-P0001 -M6-LOP-P0002 -M6-LVP-P0001 -M6-LVP-P0002 -M6-LVP-P0004 -M6-LVP-P0005	
Thermal Catalytical Oxidation Unit	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Selective Catalytical Reduction Units	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
LAW Caustic Collection Tank [a] LVP-TK-00001 LVP-SKID-00001 LVP-SKID-00002	LVP	**24590-LAW** -M5-V17T-P0011 -M6-LVP-P0002 -M6-LVP-P0004 -M6-LVP-P0005 -MT-LVP-P0004 -MTD-LVP-P0001	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Caustic Scrubber/Blowdown Vessel [a] LVP-TK-0001	LVP	**24590-LAW** -P1-P01T-P0004 -M6-LVP-P0002	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Electric Heaters-LOP-HTR-00001/2, LVP-HTR-00001A/B, LVP-HTR-00002	LOP/LVP	**24590-LAW** -M5-LVP-P0010 -M6-LOP-P0001 -M6-LOP-P0002 -M6-LVP-P0001	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
		-M6-LVP-P0005	
Heat Exchangers LVP-HX-00001	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Pumps-LOP-EDUC-00001/2	LOP/LVP	**24590-LAW** -M6-LOP-P0001 -M6-LOP-P0002	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Exhaust Fans-LOP-BLWS-00001/2/3/4/5/6/7/8/9/10	LOP/LVP	**24590-LAW** -M6-LOP-P0001 -M6-LOP-P0002	Section 4.1.3.3 of Attachment 51, Chapter 4 of this Permit
Mist Eliminators	LVP	RESERVED	Section 4.1.3.3 of Attachment 51, Chapter 4 of this Permit
LAW Stack	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

[a] Requirements pertaining to the tanks in LAW Vitrification System Melter Feed System, Submerged Bed Scrubbers/Condensate Vessels, and Caustic Scrubber/Blowdown Vessel are specified in Permit Section III.10.E.

1 **Table III.10.H.B - LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains**

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specification Nos., etc.)
Floor Drain LVP-FD-00001	RESERVED	RESERVED	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED

2

3 **Table III.10.H.C - LAW Vitrification System Process and Leak Detection System Instruments and Parameters**

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

4

1

Table III.10.H.D - Maximum Feed-rates to LAW Vitrification System (RESERVED)

2

Description of Waste	Shakedown 1 and Post Demonstration Test	Shakedown 2 and Demonstration Test
Dangerous and Mixed Waste Feed-rate		
Total Chlorine/Chloride Feed-rate		
Total Metal Feed-rates		
Total Ash Feed-rate		

3

Table III.10.H.E - LAW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

TABLE III.10.H.F - LAW Vitrification System Waste Feed Cutoff Parameters*[1] (RESERVED)

Sub-system Designation	Instrument Tag Number	Parameter Description	Setpoints During Shakedown 1 and Post Demonstration Test	Setpoints During Shakedown 2 and Demonstration Test

* A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.
[1] Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., ash, metals, and chlorine/chloride) feed limits specified on Table III.10.H.D. of this Permit

III.10.I LAW Vitrification System – Long Term Miscellaneous Thermal Treatment Unit

For purposes of Permit Section III.10.I, where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "LAW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a LAW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

III.10.I.1 Requirements For LAW Vitrification System Beginning Normal Operation

Prior to commencing normal operations provided in Permit Section III.10.I, all requirements in Permit Section III.10.H shall have been met by the Permittees and approved by Ecology, including the following: The LAW Vitrification System Demonstration Test results and the revised Final Risk Assessment provided for in Permit Condition III.10.C.11.c. or III.10.C.11.d. and Permit Section III.10.H, shall have been evaluated and approved by Ecology, Permit Tables III.10.I.D and F, as approved/modified pursuant to Permit Condition III.10.H.5., shall have been completed, submitted and approved pursuant to Permit Condition III.10.H.3.d.v. and Permit Table III.10.I.E, as approved/modified pursuant to

Permit Condition III.10.H.5, shall have been completed, submitted and approved pursuant to Permit Condition III.10.C.11.c. or d.

III.10.I.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-340].

i. The Permittees shall maintain the design and construction of the LAW Vitrification System as specified in Permit Condition III.10.I.1., Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 9.1 through 9.17 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a. through d. and III.10.H.5.f.

ii. The Permittees shall maintain the design and construction of all containment systems for the LAW Vitrification System, as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 9.2 and 9.4 through 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a. through d.

iii. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the LAW Vitrification System shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

iv. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer; registered professional engineer; independent corrosion expert; independent, qualified installation inspector; installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new LAW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following LAW Vitrification System components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs [i.e., (a) through (g)], in accordance with WAC 173-303-680.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

v. The Permittees shall ensure periodic integrity assessments are conducted on the LAW Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.H.5, over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Unit operating record until ten (10) years after post closure, or corrective action is complete and certified, whichever is later.

vi. The Permittees shall address problems detected during the LAW Vitrification System integrity assessments specified in Permit Condition III.10.I.1.a.v. following the description of the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c.

vii. All process monitors/instruments as specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.I.F.

viii. The Permittees shall install and test all process and leak detection system monitors/instruments, as specified in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Condition III.10.H.5 and III.10.H.3.d.v., in accordance with Attachment 51, Appendices 9.1, 9.2, and 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.d.x. and III.10.H.5.f..xvi.

ix. No dangerous and/or mixed waste shall be treated in the LAW Vitrification System unless the operating conditions, specified under Permit Condition III.10.I.1.c. are complied with.

x. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the LAW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of LAW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

xi. The Permittees shall operate the LAW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5 and Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

xii. For routinely non-accessible LAW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi., the Permittees shall mark all routinely non-accessible LAW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each LAW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiii. For the LAW Vitrification System sub-systems not addressed in Permit Condition III.10.I.1.a.xii., the Permittees shall mark these LAW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the LAW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiv. The Permittees shall ensure that the secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the LAW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v. [WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xv. The Permittees must immediately, and safely, remove from service any LAW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.I.1.a.xvii. A through D, and F. The affected LAW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.I.1.a.xvii.E [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xvi. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.9, 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and/or mixed waste into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation

or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

xvii. The Permittees shall inspect all secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)].

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the LAW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the waste from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The waste removed from containment areas of the LAW Vitrification System sub-systems shall be, as a minimum, managed as dangerous and/or mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur.

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary LAW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.I.1.a.iii.) the LAW Vitrification System in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v., before the LAW

Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees shall document in the WTP Unit operating record actions/procedures taken to comply with A through E above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and report releases to the environment to Ecology, as specified in WAC 173-303-640(7)(d).

xviii. If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C, listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

xix. All air pollution control devices and capture systems in the LAW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the LAW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

xx. In all future narrative permit submittals, the Permittees shall include LAW Vitrification sub-system names with the sub-system designation.

xxi. For any portion of the LAW Vitrification System that has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

xxii. For each LAW Vitrification System sub-system holding dangerous and/or mixed waste that are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

III.10.I.1.b. Performance Standards

i. The LAW Vitrification System must achieve a destruction and removal efficiency (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed

below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC 173-303-680(2)]:

RESERVED

DRE in this permit condition shall be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

W_{in}=mass feedrate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

W_{out}=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

ii. Particulate matter emissions from the LAW Vitrification System shall not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)];

iii. Hydrochloric acid and chlorine gas emissions from the LAW Vitrification System shall not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)];

iv. Dioxin and Furan TEQ emissions from the LAW Vitrification System shall not exceed 0.2 nanograms (ng)/dscm, [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)];

v. Mercury emissions from the LAW Vitrification System shall not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];

vi. Lead and cadmium emissions from the LAW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

vii. Arsenic, beryllium, and chromium emissions from the LAW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

viii. Carbon monoxide (CO) emission from the LAW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

ix. Hydrocarbon emission from the LAW Vitrification System shall not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system during demonstration testing required by this Permit), dry basis and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2) and (3)];

x. If the emissions from the LAW Vitrification System exceed the emission rates listed in Permit Table III.10.I.E, as approved pursuant to Permit Condition III.10.C.11.c. or d., the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and

C. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. through g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

The emission limits specified in Permit Conditions III.10.I.1.b.i. through x. above, shall be met for the LAW Vitrification System by limiting feed rates as specified in Permit Tables III.10.I.D and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5. and III.10.H.3.d.v., compliance with operating conditions specified in Permit Condition III.10.I.1.c. (except as specified in Permit Condition III.10.I.1.b.xii.), and compliance with Permit Condition III.10.I.1.b.xi.;

xi. Treatment effectiveness, feed-rates and operating rates for dangerous and/or mixed waste management units contained in the LAW Building, but not included in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.H.5, shall be as specified in Permit Sections III.10.D through F and consistent with assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Condition III.10.C.11.c or III.10.C.11.d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)];

xii. Compliance with the operating conditions specified in Permit Condition III.10.I.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.I.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.I.1.c. is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.I.1.b.i. through x., the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.I.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2) and (3)]

The Permittees shall operate the LAW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi. and Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e., and Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., except as modified pursuant to Permit Conditions III.10.H.3, III.10.I.1.b.x., III.10.I.1.b.xii., III.10.I.1.h., and in accordance with and the following:

i. The Permittees shall operate the LAW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within the set-points specified in Permit Table III.10.I.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.I.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW Vitrification System when all instruments specified in Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock out the dangerous waste and/or mixed waste feed to the LAW Vitrification System when any portion of the LAW Vitrification System is bypassed. The terms "bypassed" and "bypass event," as used in Permit Sections III.10.H and III.10.I, shall mean if any portion of the LAW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., the Permittees shall immediately, manually cut-off the dangerous and/or mixed waste feed to the LAW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and/or mixed waste feed to the LAW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.I.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.I.1.c.ii., iii., and/or iv.

vii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within

five (5) calendar days of the thirty-first exceedance, including the information specified below. These dangerous and/or mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified in Permit Table III.10.I.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.I.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

viii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within a thirty (30) day period, the Permittees shall submit the written report required to be submitted pursuant to Permit Condition III.10.I.1.c.vii. to Ecology on the first business day following the thirty-first exceedance. These dangerous and/or mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.I.F, from which the set-point is deviated:

In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume dangerous and/or mixed waste feed to the LAW Vitrification System until this written report has been submitted, and

A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or mixed waste feed, or

B. Ecology has not, within seven (7) days, notified the Permittees in writing of the following:

1. The Permittees written report does not document that the corrective measures taken will minimize future exceedances; and

2. The Permittees must take further corrective measures and document that these further corrective measures will minimize future exceedances.

ix. If any portion of the LAW Vitrification System is bypassed while treating dangerous and/or mixed waste, it shall be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.I.1.c. and the performance standards specified in Permit Condition III.10.I.1.b. After such a bypass event, the Permittees shall perform the following actions:

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the WTP Unit operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

x. The Permittees shall control fugitive emissions from the LAW Vitrification System by maintaining the melters under negative pressure.

xi. Compliance with the operating conditions specified in Permit Condition III.10.I.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.I.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.I.1.d. Inspection Requirements [WAC 173-303-680(3)]

i. The Permittees shall inspect the LAW Vitrification System in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

ii. The inspection data for LAW Vitrification System shall be recorded, and the records shall be placed in the WTP Unit operating record for LAW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f. and as modified by Permit Conditions III.10.H.3, III.10.I.1.b.x., III.10.I.1.b.xii., and III.10.I.1.h.

III.10.I.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in the Attachment 51, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5, and as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f.,

and as modified by Permit Conditions III.10. H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified in Permit Tables III.10.I.C and F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., in accordance with Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

III.10.I.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Unit operating record for the LAW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and 5, as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

ii. The Permittees shall record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cutoffs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed waste feed processing time for the LAW Vitrification System;

B. Date/Time of all LAW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.

iv. The Permittees shall submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEM Calibration Error and Annual CEM Performance Specification Tests conducted, in accordance with Permit Condition III.10.I.1.e.iii.

III.10.I.1.g. Closure

The Permittees shall close the LAW Vitrification System in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.I.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

i. Dioxin and Furan Emission Testing

A. Within eighteen (18) months of commencing operation pursuant to Permit Section III.10.I, the Permittees shall submit to Ecology for approval, a Dioxin and Furan Emission Test Plan (DFETP) for the performance of emission testing of the LAW Vitrification System gases for dioxin and furans during "Normal Operating Conditions" as a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f. The DFETP shall include all elements applicable to dioxin and furan emission testing included in the "Previously Approved Demonstration Test Plan," applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test. "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.), that were established to maintain compliance with Permit Condition III.10.I.1.b.iv. as specified in Attachment 51, Appendix 9.15 of this Permit (as approved pursuant to Permit Condition III.10.H.3.d., and in accordance with III.10.I.1.b.xii. and III.10.I.1.c.xi.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.I.D (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one (31) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the DFETP approved pursuant to Permit Condition III.10.I.1.h.i.A.

C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition III.10.I.1.h.i.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f. at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.i.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees shall implement these newly approved revised DFETPs, every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.i.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.i.A and C. show that one or more of the performance standards listed in Permit Condition III.10.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.i.E.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to

stop dangerous waste and mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10. I.1.h.i.E.6; and

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e.and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.i.A and C show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c. or d. is exceeded for LAW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit Condition I.E.21.;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

ii. Non-organic Emission Testing

A. Within forty-eight (48) months of commencing operation pursuant to Permit Section III.10.I, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected

commencement and completion dates for emission testing to demonstrate performance standards specified in Permit Conditions III.10.I.1.b.ii., iii., v., vi., and vii., and non-organic emissions as specified in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.I.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as specified in Permit Table III.10.I.E, as specified in Attachment 51, Appendix 9.15 of this Permit (as approved pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.D, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.ii.A.

C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition III.10.I.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees shall

implement these newly approved revised RDTP, every sixty (60) months from the previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified pursuant to WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., is exceeded for LAW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit condition I.E.21.;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that one or more of the performance standards listed in Permit Condition III.10.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.ii.F.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.I.1.h.ii.F.6; and

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

iii. Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.I, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.I.1.b.viii. and ix., and emissions as specified in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., not addressed under Permit Conditions III.10.I.1.h.i. or ii. under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Condition III.10.H.3.d. and

III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.I.1.b.viii. and ix., and emissions as specified in Permit Table III.10.I.E, not addressed under Permit Conditions III.10.I.1.h.i. or ii. as specified in Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.3.d., and in accordance with Permit Conditions III.10.I.1.b.xii. and III.10.I.1.c.xi. are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.I.F. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.D, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d. Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.iii.A.

C. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Condition III.10.I.1.h.iii.A to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with Permit Condition WAC 173-303-680(2) and (3).

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.iii.D.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10. I.h.1.iii.D.6.; and

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

E. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c. or d., is exceeded for LAW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit Condition I.E.21.;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of the exceedance of the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised

Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

1 **Table III.10.I.A - LAW Vitrification System Description**

2

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables and Figures
Melter 1 Feed Preparation Vessel – LFP-VSL-00001[a], Melter 1 Feed Vessel LFP-VSL-00002[a], Melter 2 Feed Preparation Vessel LFP-VSL-00003[a], Melter 2 Feed Vessel-LFP-VSL-00004[a], Melter 3 Feed Preparation Vessel V21301[a], Melter 3 Feed Vessel V21302[a] (LAW Melter Feed Process System)	LFP LCP GFR	**24590-LAW** -M5-V17T-P0001 -M5-V17T-P0002 -M6-LCP-P0001 -M6-LCP-P0002 -M6-LCP-P0003 -MV-LCP-P0001 -MV-LCP-P0002 -MV-LCP-P0004 -MV-LCP-P0005 -P1-P01T-P0002 -P1-P01T-P0010 -P1-P01T-P0011	Section 4.1.3.1; Tables 4-4 and 4-11, and Figures 4A-1, 4A-3, and 4A-20 of Attachment 51, Chapter 4 of this Permit
LAW Melters LMP-MLTR-00001/2	LMP	**24590-LAW** -P1-P01T-P0007 -P1-P01T-P0009	Section 4.2.3.2; Tables 4-4, and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
LAW Glass Product Systems-Melter 1,2, & 3	LMP	**24590-LAW** -P1-P01T-P0007 -P1-P01T-P0009	Section 4.2.3.2 of Attachment 51, Chapter 4 of this Permit
Primary & Secondary Film Coolers-Melter 1, 2, & 3	LOP	**24590-LAW** -P1-P01T-P0002 -P1-P01T-P0007	Section 4.1.3.3 and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
Melter 1/ 2 Submerged Bed Scrubbers LOP-SCB-00001/2, Melter 1/2 SBS Condensate Vessels LOP -VSL-00001/2[a], Submerged Bed Scrubbers/Condensate Vessels [a]-Melter 1, 2, & 3	LOP	**24590-LAW** -M5-V17T-P0007 -M5-V17T-P0008 -M6-LOP-P0001 -M6-LOP-P0002 -MK-LOP-P0001001 -MK-LOP-P0001002 -MK-LOP-P0001003 -MKD-LOP-P0002 -MKD-LOP-P0004 -MKD-LOP-P0008 -MV-LOP-P0001 -MV-LOP-P0002 -MVD-LOP-P0004 -MVD-LOP-P0005 -N1D-LOP-P0001 -N1D-LOP-P0003 -P1-P01T-P0002	Section 4.1.3.3; Tables 4-4 and 4-11, and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables and Figures
		-P1-P01T-P0007 -P1-P01T-P0010 -P1-P01T-P0011	
Wet electrostatic Precipitators-Melter 1, 2, & 3-LOP-WESP-00001/2	LOP	**24590-LAW** -P1-P01T-P0002 -P1-P01T-P0007 -P1-P01T-P0011 -M6-LOP-P0001 -M6-LOP-P0002	Section 4.1.3.3 and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
High Efficiency Particulate Air Filters-LCP-HEPA-00001/2/3, LCP-BULGE-00002, LFP-HEPA-00001/2, LOP-HEPA-00001/2, LVP-HEPA-00001A/B, LVP-HEPA-00002A/B. LVP-HEPA-00003A.	LCP/LFP/ LOP/LVP	**24590-LAW** -M5-LVP-P0010 -M6-LCP-P0001/2 -M6-LFP-P0001 -M6-LFP-P0003 -M6-LOP-P0001 -M6-LOP-P0002 -M6-LVP-P0001 -M6-LVP-P0002 -M6-LVP-P0004 -M6-LVP-P0005	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Thermal Catalytical Oxidation Unit	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Selective Catalytical Reduction Units	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
LAW Caustic Collection Tank [a] LVP-TK-00001 LVP-SKID-00001 LVP-SKID-00002	LVP	**24590-LAW** -M5-V17T-P0011 -M6-LVP-P0002 -M6-LVP-P0004 -M6-LVP-P0005 -MT-LVP-P0004 MTD-LVP-P0001	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Caustic Scrubber/Blowdown Vessel [a] LVP-TK-0001 LVP-SCB-00001	LVP	**24590-LAW** -P1-P01T-P0004 -P1-P01T-P0009 -M6-LVP-P0002	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
ElectricHeaters-LOP-HTR-00001/2, LVP-HTR-00001A/B, LVP-HTR-00002	LOP/LVP	**24590-LAW** -M5-LVP-P0010 -M6-LOP-P0001 -M6-LOP-P0002 -M6-LVP-P0001 -M6-LVP-P0005	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables and Figures
Heat Exchangers LVP-HX-00001	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Pumps-LOP-EDUC-00001/2, , LVP-PMP-00001A/B, LVP-PMP-00002A/B,	LOP/LVP	**24590-LAW** -M6-LOP-P0001 -M6-LOP-P0002 -M6-LVP-P0002	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
ExhaustFans-LOP-BLWS-00001/2/3/4/5/6/7/8/9/10, LVP-EXHR-00001A/B/C,	LOP/LVP	**24590-LAW** -M5-LVP-P0010 -M6-LOP-P0001 -M6-LOP-P0002 -M6-LVP-P0001	Section 4.1.3.3 of Attachment 51, Chapter 4 of this Permit
Mist Eliminators	LVP	RESERVED	Section 4.1.3.3 of Attachment 51, Chapter 4 of this Permit
LAW Stack	LVP	RESERVED	Section 4.1.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

a. Requirements pertaining to the tanks in LAW Vitrification System Melter Feed System, Submerged Bed Scrubbers/Condensate Vessels, and Caustic Scrubber/Blowdown Vessel are specified in Permit Section III.10.E.

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3 **Table III.10.I.B - LAW Vitrification System Secondary Containment Systems**
4 **Including Sumps and Floor Drains**

5

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos, Specification Nos, etc.)
RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.I.C - LAW Vitrification Systems Process and Leak Detection System Instruments and Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.I.D - Maximum Feed-rates to LAW Vitrification System (RESERVED)

Description of Waste	Normal Operation
Dangerous and/or Mixed Waste Feed Rate	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feedrates	

Table III.10.I.E - LAW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

TABLE III.10.I.F - LAW Vitrification System Waste Feed Cut-off Parameters* [1](RESERVED)

Sub-system Designation	Instrument Tag Number	Parameter Description	Set-points During Normal Operation

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.I.D. of this Permit

III.10.J HLW Vitrification System – Short Term Miscellaneous Thermal Treatment Unit-Shakedown, Demonstration Test, and Post Demonstration Test

For purposes of Permit Section III.10.J, where reference is made to WAC 173-303-640, the following substitutions apply: substituting the terms "HLW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a HLW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

III.10.J.1. General Conditions During Shakedown, Demonstration Test, and Post-Demonstration Test for HLW Vitrification System

III.10.J.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].

i. The Permittees shall construct the HLW Vitrification System (listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5.) as specified in Permit Condition III.10.J.1. and Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.1 through 10.15 and 10.17 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d., and III.10.J.5.f.

ii. The Permittees shall construct all containment systems for the HLW Vitrification System as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.2, 10.4, through 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d.

iii. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer, independent corrosion expert, independent qualified installation inspector, etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10.:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new HLW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following HLW Vitrification system components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

iv. The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to the HLW Vitrification System during installation. Prior to

covering, enclosing, or placing the new HLW Vitrification System or component in use, an independent, qualified, installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

G. Weld breaks;

H. Punctures;

I. Scrapes of protective coatings;

J. Cracks;

K. Corrosion;

L. Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the HLW Vitrification system is covered, enclosed, or placed in use [WAC 173-303-640(3)(c), in accordance with WAC 173-303-680(2) and (3)].

v. For the HLW Vitrification System or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the HLW Vitrification System and compacted to ensure that the HLW Vitrification System is fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

vi. The Permittees must test for tightness the HLW Vitrification System or components, prior to being covered, enclosed, or placed into use. If the HLW Vitrification System or components are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the HLW Vitrification System being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

vii. The Permittees must ensure the HLW Vitrification System equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

viii. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 10.9 and 10.11 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.b.i., III.10.J.5.b.iv., III.10.J.5.b.v., III.10.J.5.c.i., III.10.J.5.c.iv., III.10.J.5.c.v., III.10.J.5.d.i., III.10.J.5.d.iv., and III.10.J.5.d.v., or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the HLW Vitrification System during use of the HLW Vitrification System. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper

installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

ix. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall obtain and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the HLW Vitrification System and supervise the installation of the HLW Vitrification System, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that the HLW Vitrification system and corresponding containment system listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5., were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

x. The independent HLW Vitrification System installation inspection and subsequent written statements shall be certified in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii., comply with all requirements of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and shall consider, but not be limited to, the following LAW Vitrification System installation documentation:

A. Field installation report with date of installation;

B. Approved welding procedures;

C. Welder qualification and certifications;

D. Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1; American Petroleum Institute (API) Standard 620, or Standard 650, as applicable;

E. Tester credentials;

F. Field inspector credentials;

G. Field inspector reports;

H. Field waiver reports; and

I. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

xi. The Permittees shall ensure periodic integrity assessments are conducted on the HLW Vitrification System, listed in Permit Table III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5., over the term of this Permit, in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP

Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

xii. The Permittees shall address problems detected during the HLW Vitrification System integrity assessments specified in Permit Condition III.10.J.1.a.xi. following the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.

xiii. All process monitors/instruments as specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.J.F.

xiv. The Permittees shall install and test all process and leak detection system monitors/instrumentation as specified in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, in accordance with Attachment 51, Appendices 10.1, 10.2, and 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.

xv. No dangerous and/or mixed waste shall be treated in the HLW Vitrification System unless the operating conditions, specified under Permit Condition III.10.J.1.c. are complied with.

xvi. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the subsystem, subsystem equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system and sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

xvii. The Permittees shall operate the HLW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

xviii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are

unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xix. For all HLW Vitrification System sub-systems not addressed in Permit Condition III.10.J.1.a.xviii., the Permittees shall mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xx. The Permittees shall ensure that the containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A. and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303–640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xxi. The Permittees must immediately, and safely, remove from service any HLW Vitrification System or secondary containment system which, through an integrity assessment, is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.J.1.a.xxiii.A. through D., and F. The affected HLW Vitrification System, or secondary containment system, must be either repaired or closed in accordance with Permit Condition III.10.J.1.a.xxiii.E. [WAC 173-303-640(7)(e) and (f), and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xxii. An impermeable coating, as specified in Attachment 51, Appendices 10.4, 10.5, 10.7, 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition III.10.J.5.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for each HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B as approved/modified pursuant to Permit Condition III.10.J.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and mixed waste into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate, are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

xxiii. The Permittees shall inspect all containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the HLW Vitrification System sub-systems shall be, as a minimum, managed as mixed waste.

D. If the cause of the release was a spill has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not re-occur [WAC 173-303-320(3)].

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary HLW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the HLW Vitrification System Sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8., or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii.) the HLW Vitrification System in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees shall document, in the WTP Unit operating record, actions/procedures taken to comply with A. through E. above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and WAC 173-303-680 (3), the Permittees shall notify and report releases to the environment to Ecology, as specified in WAC 173-303-640(7)(d).

xxiv. If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C, listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

xxv. All air pollution control devices and capture systems in the HLW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the HLW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

xxvi. In all future narrative permit submittals, the Permittees shall include HLW Vitrification sub-system names with the sub-system designation.

xxvii. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the HLW Vitrification System shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

xxviii. For any portion of the HLW Vitrification System that has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

xxix. For each HLW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e) in accordance with WAC 173-303-680].

III.10.J.1.b. Performance Standards

i. The HLW Vitrification System must achieve a destruction and removal efficiency (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed below [40 CFR §63.1203(c)(1) and 40CFR 63.1203(c)(2), in accordance with WAC 173-303-680(2)].

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DRE in this this Permit condition shall be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

W_{in}=mass feedrate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

W_{out}=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

ii. Particulate matter emissions from the HLW Vitrification System shall not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)]:

iii. Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System shall not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)]:

iv. Dioxin and Furan TEQ emissions from the HLW Vitrification System shall not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)]:

v. Mercury emissions from the HLW Vitrification System shall not exceed 45 µg/dscm, [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)].

vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)].

vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)].

viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured

and recorded by the continuous monitoring system), dry [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2)].

ix. Hydrocarbon emission from the HLW Vitrification System shall not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system during demonstration testing required by this Permit), dry basis, and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2)]:

x. If the emissions from the HLW Vitrification System exceed the emission rates listed in Permit Table III.10.J.E, as approved pursuant to Permit Condition III.10.C.11.b., the Permittees shall notify Ecology, in accordance with Permit Condition III.10.J.3.d.vii. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

The emission limits specified in Permit Conditions III.10.J.1.b.i. through III.10.J.1.b.x. above, shall be met for the HLW Vitrification System by limiting feed rates as specified in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., compliance with operating conditions specified in Permit Condition III.10.J.1.c. (except as specified in Permit Condition III.10.J.1.b.xii.), and compliance with Permit Condition III.10.J.1.b.xi.

xi. Treatment effectiveness, feed-rates and operating rates for dangerous and mixed waste management units contained in the HLW Building, but not included in Permit Table III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5., shall be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

xii. Compliance with the operating conditions specified in Permit Condition III.10.J.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.J.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.J.1.c. is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.J.1.b.i. through x., the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

III.10.J.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)].

The Permittees shall operate the HLW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., except as modified pursuant to Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., III.10.J.4., and in accordance with the following:

i. The Permittees shall operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., within the set-points specified in Permit Table III.10.J.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.J.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when all instruments specified on Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the HLW Vitrification System when any portion of the HLW Vitrification System is bypassed. The terms "bypassed" and "bypass event" as used in Permit Sections III.10.J and III.10.K shall mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., the Permittees shall immediately, manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.J.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.J.1.c.ii., III.10.J.1.c.iii., and/or III.10.J.1.c.iv.

vii. If greater than thirty (30) dangerous and mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first exceedance including the information specified below. These dangerous and mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous waste, mixed waste, and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.J.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.J.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and,

D. Corrective measures taken to minimize future occurrences of the deviations.

viii. If any portion of the HLW Vitrification System is bypassed while treating dangerous and/or mixed waste, it shall be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.J.1.c. and the performance standards specified in Permit Condition III.10.J.1.b. After such a bypass event, the Permittees shall perform the following actions:

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

ix. The Permittees shall control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

x. Compliance with the operating conditions specified in Permit Condition III.10.J.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.J.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

III.10.J.1.d. Inspection Requirements [WAC 173-303-680(3)].

i. The Permittees shall inspect the HLW Vitrification System in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

ii. The inspection data for HLW Vitrification System shall be recorded, and the records shall be placed in the WTP Unit operating record for the HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

III.10.J.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and mixed waste and exhaust emissions to verify that the

operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in Attachment 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.c., III.10.J.5.d., III.10.J.5.e., and III.10.J.5.f., as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specification 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.J.C and F, as approved/modified pursuant to Permit Condition III.10.J.5., in accordance with Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

III.10.J.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Unit operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4. and III.10.C.5., as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

ii. The Permittees shall record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology a report semi-annually the first calendar year, and annually thereafter each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and mixed waste feed processing time for the HLW Vitrification System;

B. Date/Time of all HLW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5.

iv. The Permittees shall submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEM Calibration Error and Annual CEM Performance Specification Tests conducted in accordance with Permit Condition III.10.J.1.e.iii.

III.10.J.1.g. Closure

The Permittees shall close the HLW Vitrification System in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.J.2. Shakedown Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

III.10.J.2.a. The shakedown period for the HLW Vitrification System shall be conducted in accordance with Permit Condition III.10.J.1., Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified in accordance with Permit Conditions III.10.J.1.b.xii., III.10.J.2., and III.10.J.3.

III.10.J.2.b. Duration of the Shakedown Period

i. The shakedown period for the HLW Vitrification System shall begin with the initial introduction of dangerous waste in the HLW Vitrification System following construction and shall end with the start of the demonstration test.

ii. The shakedown period shall not exceed the following limits, as defined by hours of operation of the HLW Vitrification System with dangerous waste. The Permittees may petition Ecology for one (1) extension of each shakedown phase for seven hundred and twenty (720) additional operating hours in accordance with permit modification procedures specified in Permit Conditions III.10.C.2.e. and III.10.C.2.f.

Shakedown Phase 1: 720 hours

Shakedown Phase 2: 720 hours

iii. Shakedown Phase 2 shall not be commenced until documentation has been submitted to Ecology verifying that the HLW Vitrification System has operated at a minimum of 75% of the shakedown Phase 1 feed-rate limit for two (2) separate eight (8) consecutive hour periods with no AWFCOs.

III.10.J.2.c. Allowable Waste Feed During the Shakedown Period

i. The Permittees may feed the dangerous waste specified for the HLW Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.J.2.c.ii. through v. also apply.

ii. The Permittees shall not feed the following waste to the HLW Vitrification System during Shakedown Phase 1:

A. Acutely toxic dangerous waste listed in WAC 173-303-081(a)(2)(a)(i).

B. Mixed waste

iii. The Permittees shall not feed the following waste to the HLW Vitrification System during Shakedown Phase 2:

A. Mixed waste

iv. The feed-rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5.

v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the HLW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

III.10.J.3. Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

III.10.J.3.a. Demonstration Test Period

i. The Permittees shall operate, monitor, and maintain the HLW Vitrification System as specified in Permit Condition III.10.J.1., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., except as modified in accordance with Permit Conditions III.10.J.1.b.xii. and III.10.J.3.

ii. Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., shall be re-submitted to Ecology for approval by the Permittees as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. at least one hundred and eighty (180) days prior to the start date of the demonstration test. The revised Demonstration Test Plan shall include applicable EPA promulgated test methods and procedures in effect at the time of the re-submittal and projected commencement and completion dates for the Demonstration Test.

iii. The Permittees shall not commence the demonstration test period until documentation has been submitted to Ecology verifying that the HLW Vitrification System has operated at a minimum of 90% of the demonstration test period feed-rate limit for a minimum of an eight (8) consecutive hours period on two (2) consecutive days.

III.10.J.3.b. Performance Standards

The Permittees shall demonstrate compliance with the performance standards specified in Permit Condition III.10.J.1.b. during the Demonstration Test Period.

III.10.J.3.c. Allowable Waste Feed During the Demonstration Test Period

i. The Permittees may feed the dangerous waste specified for the HLW Vitrification System in Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.J.3.c.ii. through iv. also apply.

ii. The Permittees shall not feed mixed waste to the HLW Vitrification System.

iv. The dangerous waste feed-rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5.

v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the HLW Vitrification System to verify that the dangerous waste is within the physical and chemical composition limits specified in this Permit.

III.10.J.3.d. Demonstration Data Submissions and Certifications

i. The Permittees shall submit to Ecology a complete demonstration test report within one hundred and twenty (120) calendar days of completion of the Demonstration Test including all data collected during the Demonstration Test and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F.

ii. The Permittees must submit the following information to Ecology prior to receiving Ecology's approval to commence feed of dangerous waste and mixed waste to the HLW Vitrification System:

A. The Permittees shall submit a summary of data collected as required during the Demonstration Test to Ecology upon completion of the Demonstration Test.

B. A certification that the Demonstration Test has been carried out in accordance with the approved Demonstration Test Plan and approved modifications within thirty (30) days of the completion of the Demonstration Test [WAC 173-303-807(8)].

C. Calculations and analytical data showing compliance with the performance standards specified in Permit Conditions III.10.J.1.b.i, III.10.J.1.b.iv, III.10.J.1.b.v, III.10.J.1.b.vi, and III.10.J.1.b.vii

D. Laboratory data QA/QC summary for the information provided in III.10.J.3.d.ii.C.

iii. After successful completion of the Demonstration Test and receipt of Ecology's approval, the Permittees shall be authorized to commence feed of dangerous waste and mixed waste to the HLW Vitrification System for the post-demonstration test period indicated in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5., in compliance with the operating requirements specified in Permit Condition III.10.J.1.c. and within the limitations specified in Permit Condition.III.10.C.14.

iv. RESERVED

v. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and Permittees receipt of Ecology approval of the following in writing, the Permittees shall be authorized to feed dangerous waste and mixed waste to the HLW Vitrification System pursuant to Permit Section III.10.K.

A. A complete Demonstration Test Report for the HLW Vitrification System and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F, as

approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.C.11.c. or III.10.C.11.d., the test report shall be certified in accordance with WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

B. A Final Risk Assessment Report completed pursuant to Permit Conditions III.10.C.11.c. or III.10.C.11.d.

vi. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Condition III.10.J.1.b.x., for the HLW Vitrification System were not met during the Demonstration Test, the Permittees shall perform the following actions:

A. Immediately stop dangerous and mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

C. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

D. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s), documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Condition III.10.J.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

E. Based on the information provided to Ecology by the Permittees, pursuant to Permit Conditions III.10.J.3.d.vi.A through D above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of a compliance schedule and/or revised Demonstration Test Plan, pursuant to Permit Conditions III.10.J.3.d.vi.F and G.

F. If the performance standard listed in Permit Condition III.10.J.1.b.i. was not met during the Demonstration Test, the Permittees shall submit within one hundred and twenty (120) days of discovery of not meeting the performance standard, a revised Demonstration Test Plan (if appropriate) and a compliance schedule for Ecology approval to address this deficiency. If a revised Demonstration Test Plan is submitted, it shall be accompanied by a request for approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and III.10.C.2.f. The revised Demonstration Test Plan (if submitted) must include substantive changes to prevent failure from reoccurring.

G. If any of the performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Conditions III.10.J.1.b.i. or III.10.J.1.b.x., were not met during the Demonstration Test, the Permittees shall submit to Ecology within one

hundred and twenty (120) days of discovery of not meeting the performance standard(s), a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

vii. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.J.E, as approved pursuant to Permit Condition III.10.C.11.b., is exceeded for HLW Vitrification System during the Demonstration Test, the Permittees shall perform the following actions:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and,

C. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

III.10.J.4. Post-Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

III.10.J.4.a. The Permittees shall operate, monitor, and maintain the HLW Vitrification System as specified in Permit Condition III.10.J.1. and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5., except as modified in accordance with Permit Conditions III.10.J.1.b.xii., III.10.J.3., and III.10.J.4.

III.10.J.4.b. Allowable Waste Feed During the Post-Demonstration Test Period

i. The Permittees may feed the dangerous and/or mixed waste specified for the HLW Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., and except Permit Conditions III.10.J.4.b.ii. and III.10.J.4.b.iii. also apply.

ii. The dangerous waste and mixed waste feed rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5., or in Permit Condition III.10.J.3.

iii. The Permittees shall conduct sufficient analysis of the dangerous waste and mixed waste treated in HLW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

III.10.J.5. Compliance Schedules

III.10.J.5.a. All information identified for submittal to Ecology in a. through f. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.J.1.a.iii. [WAC 173-303-806(4)].

III.10.J.5.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to construction of each secondary containment and leak detection system for the HLW Vitrification System (per level) as identified in Permit Tables III.10.J.A and III.10.J.B, engineering information as specified below, for incorporation into Attachment 51, Appendices 10.2, 10.4, 10.5, 10.7, 10.8, 10.9, 10.11, and 10.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

i. IQRPE Reports (specific to foundation, secondary containment, and leak detection system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports shall be consistent with the information separately provided in ii. through ix. below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

ii. Design drawings (General Arrangement Drawings, plan and cross sections) and specifications for the foundation, secondary containment including liner installation details, and leak detection methodology. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Secondary containment/foundation, and leak detection system, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

vi Detailed description of how the secondary containment for the HLW Vitrification System will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

vii. Submit Permit Tables III.10.J.B and III.10.K.B completed to provide for all secondary containment sumps and floor drains the information, as specified in each column heading consistent with information to be provided in i. through vi., above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how HLW Vitrification System design provides access for conducting future HLW Vitrification System integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

III.10.J.5.c. The Permittees shall submit to Ecology pursuant to Permit Condition III.10.C.9.f., prior to installation of each sub-system as identified in Permit Table III.10.J.A, engineering information as specified below, for incorporation into Attachment 51, Appendices 10.1 through 10.14 and 10.17 of this Permit. At a minimum, engineering information specified below will show the following, as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to sub-system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information separately provided in ii. through xii. below and the IQRPE Report specified in Permit Condition III.10.J.5.b. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

ii. Design drawings [General Arrangement Drawings in plan and cross section, Process Flow Diagrams, Piping and Instrumentation Diagrams, (including pressure control systems), Mechanical Drawings, and specifications, and other information specific to subsystems (to show location and physical attributes of each subsystem specific to miscellaneous units)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

iii. Sub-system design criteria (references to codes and, standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details to support the sub-systems. Structural support calculations specific to off-specification, non-standard, and field-fabricated subsystems shall be

submitted for incorporation into the Administrative Record. Documentation shall include, but not be limited to, supporting specifications (test data, treatment effectiveness report, etc.), supporting projected operational capability (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.), and compliance with performance standards specified in Permit Condition III.10.J.1.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System descriptions (process) related to sub-system units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

viii. Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

ix. Detailed description of all potential HLW Vitrification System bypass events including:

A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:

1. Operating procedures
2. Maintenance procedures
3. Redundant equipment
4. Redundant instrumentation
5. Alternate equipment
6. Alternate materials of construction

x. A detailed description of how the sub-systems will be installed in compliance with WAC 173-303-640(3)(b), (c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

xi. Sub-system design to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680, (2), and WAC 173-303-806(4)(i)(i)(B)];

xii. Documentation that sub-systems are designed to prevent the accumulation of hydrogen gases levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

III.10.J.5.d. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of equipment for each sub-system as identified in Permit Tables III.10.J.A and III.10.J.B, not addressed in Permit Conditions III.10.J.5.b. or III.10.J.5.c., engineering information as specified below, for incorporation into Attachment 51, Appendices 10.1 through 10.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to sub-system equipment) shall include a review of design drawings, calculations, and other information as applicable on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information provided separately in ii. through xiii. below and the IQRPE Reports specified in Permit Conditions III.10.J.5.b. and III.10.J.5.c. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(I)(I)(A) through (B)];

ii. Design drawings [Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), and specifications, and other information specific to equipment (these drawings should include all equipment such as pipes, valves, fittings, pumps, instruments, etc.)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

iii. Sub-system equipment design criteria (references to codes and standards, load definitions and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the sub-system equipment. [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting

the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

v. Materials selection documentation for equipment for each sub-system (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for sub-system equipment shall for equipment shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

vii. Sub-system, sub-system equipment, and leak detection system instrument control logic narrative description (e.g., software functional specifications, descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

viii. System description (process) related to sub-system equipment, and system descriptions related to leak detection systems, (including instrument control logic and narrative descriptions), for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how the sub-system equipment will be installed and tested [WAC 173-303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

x. For process monitoring, control, and leak detection system instrumentation for the HLW Vitrification System as identified in Permit Tables III.10.J.C. and III.10.J. F., a detailed description of how the process monitoring, control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

xi. Mass and energy balance for projected normal operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

xii. Documentation that sub-systems equipment are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)] [WAC 173-303-815(2)(b)(ii)];

xiii. Leak Detection system documentation (e.g. vendor information etc.) consistent with information submitted under Permit Condition III.10.J.5.c.ii. and Permit Conditions III.10.J.5.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the Administrative Record.

III.10.J.5.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified below for incorporation into Attachment 51, Appendix 10.18 of this Permit, except Permit Condition III.10.J.5.e.i., which will be incorporated into Attachment 51, Chapter 6.0 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.J.5.b., c., d., e., and f., III.10.C.3.e.v., and III.10.C.11.b., as approved by Ecology:

i. Integrity assessment program and schedule for the HLW Vitrification System shall address the conducting of periodic integrity assessments on the HLW Vitrification System over the life of the system, as specified in Permit Condition III.10.J.5.b.ix. and as specified in WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours [WAC 173-303-640(4)(c)(iii)]. Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours. Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(b);

iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated precipitation liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)];

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the HLW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

v. Description of procedures for investigation and repair of the HLW Vitrification System [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(ia)(iv), and WAC 173-303-806(4)(a)(ii)(B)];

vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit Tables III.10.J.A and III.10.J.B, as modified pursuant to Permit Condition III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-systems.

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste as specified in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

viii. A description of the tracking system used to track dangerous and/or mixed waste generated throughout the HLW Vitrification System, pursuant to WAC 173-303-380.

ix. Permit Table III.10.J.C and III.10.K.C shall be completed for HLW Vitrification System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems, as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b.and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii., shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

x. Permit Tables III.10.J.A and III.10.K.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste HLW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 10.0 sub-sections (e.g., 10.1, 10.2, etc.) designated in Permit Conditions III.10.J.5.b., c., and d. specific to HLW Vitrification System sub-system, as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

III.10.J.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit for review and receive approval for incorporation into Attachment 51, Appendix 10.15 of this Permit, a Demonstration Test Plan for the HLW Vitrification System to demonstrate that the HLW Vitrification Systems meets the performance standards specified in Permit Condition III.10.J.1.b. In order to incorporate the Demonstration Test Plan for the HLW Vitrification System into Attachment 51, Appendix 10.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan shall include, but not be limited to, the following information. The Demonstration Test Plan shall also be consistent with the information provided pursuant to Permit Conditions III.10.J.5.b., c., d. and e., III.10.C.3.e.v. and III.10.C.11.b., as approved by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of this Permit. The documentation required pursuant to Permit Condition III.10.J.5.f.xvi., in addition to being incorporated into Attachment 51, Appendix 10.15, shall be incorporated by reference in Attachment 51, Chapter 6.0 of this Permit.

Notes: (1) The following should be consulted to prepare this Demonstration Test Plan: "Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the Hazardous Waste Incineration Guidance Series", and EPA/625/6-89/019 and Risk Burn Guidance For Hazardous Waste Combustion Facilities", EPA-R-01-001, July 2001, WAC 173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40 CFR §63.1209 and Appendix to 40 CFR Part 63 EEE.

(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b., c., d., e. and III.10.C.3.e.v., as approved by Ecology, that are redundant to elements of the Demonstration Test Plan for the HLW Vitrification System is acceptable.

i. Analysis of each feed-stream to be fed during the demonstration test, including dangerous waste, glass formers and reductants, process streams (e.g., control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from HLW Vitrification Vessel Ventilation System, process water, etc.) that includes:

   A. Levels of ash, levels of metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates.

   B. Description of the physical form of the feed-streams;

   C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration;

   A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melter must be provided that documents that the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides;

ii. Specification of trial principal organic dangerous constituents (PODCs) for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.J.1.b.i. and III.10.K.1.b.i. These trial PODCs shall be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

iii. A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

iv. A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

v. A detailed engineering description of the HLW Vitrification System, including:

   A. Manufacturer's name and model number for each sub-system;

   B. Design capacity of each sub-system including documentation (engineering calculations, manufacturer/vendor specifications, operating data, etc.) supporting

projected operational efficiencies (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.J.1.b.;

C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross sections) and General Arrangement Drawings;

D. Process Engineering Descriptions;

E. Mass and energy balances for each projected operating condition and each demonstration test condition, including assumptions and formulas used to complete mass and energy balances so that they can be independently verified for incorporation into the Administrative Record;

F. Engineering Specifications/data sheets (materials of construction, physical and chemical tolerances of equipment, equipment performance warranties, and fan curves);

G. Detailed Description of Automatic Waste Feed Cut-off System addressing critical operating parameters for all performance standards specified in Permit Condition III.10.J.1.b.

H. Documentation to support compliance with performance standards specified in Permit Condition III.10.J.1.b., including engineering calculations, test data, and manufacturer/vendor's warranties, etc.

I. Detailed description of the design, operation and maintenance practices for air pollution control system.

J. Detailed description of the design, operation, and maintenance practices of any stack gas monitoring and pollution control monitoring system.

K. Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.J.1.b.ii. through III.J.1.b.ix. to seven percent (7%) oxygen,. or a request, pursuant to Permit Conditions III.10.C.9.e. and II.10.C.9.f., to update Permit Conditions III.J.1.b.ii. through III.J.1.b.ix., III.K.b.ii. through III.K.b.ix., III.K.e.iii., and III.J.1.e.iii., Permit Tables III.10.J.C, III.10.J.F, III.10.K.C., III.10.K.F.and Attachment 51, Appendix 10.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

vi. Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed

sample method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision.

vii. A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors;

viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the HLW Vitrification System to meet performance standards specified in Permit Condition III.10.J.1.b.;

ix. A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information shall also include submittal of Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F completed with the information as specified in each column heading for each HLW Vitrification System waste feed cut-off parameter and submittal of supporting documentation for Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F set-point values.

x. The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.J.1.b. with the simultaneous operation of the melter at capacity and input from the HLW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the HLW Vitrification System off-gas treatment system and to establish the corresponding operating parameter ranges.

xi. A detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures;

xii. A calculation of waste residence time;

xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards, as specified in Permit Condition III.10.J.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feedstream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

xiv. Documentation of the expected levels of constituents in HLW Vitrification System input streams, including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, gases from HLW Vitrification Vessel Ventilation System, and process water.

xv. Documentation justifying the duration of the conditioning required to ensure the HLW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

xvi. Documentation of HLW Vitrification System process and leak detection system instruments and monitors as listed on Permit Tables III.10.J.C, III.10.J.F, III.10.K.C, and III.10.K.F to include:

A. Procurement specifications

B. Location used

C. Range, precision, and accuracy

D. Calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).

F. Equipment instrument control logic narrative description (e.g., software functional specifications, descriptions of fail safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)]

xvii. Outline of demonstration test report.

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Table III.10.J.A - HLW Vitrification System Description

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables, and Figures
Feed Preparation Vessel -VSL-00001/5[a], HLW Melter Feed Vessel -VSL-00002/6[a] (HLW Melter Feed Process System)	HFP HCP	24590-HLW -M5-V17T-P0001 -M6-HFP-P0001 -M6-HFP-P20001 -M6-HFP-P20002	Section 4.1.4.1; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-26
HLW Melter 1	HMP	RESERVED	Section 4.1.4.2; Figures 4A-1, 4A-4, 4A-27
HLW Glass Product System-Melter 1	HMP	RESERVED	Section 4.1.4.2; Figures 4A-1, 4A-4, 4A-27
Film Cooler - Melter 1	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-27
Submerged Bed Scrubber /Condensate Collection Vessels -HOP-SCB-00001/2 [a] - Melters 1 & 2	HOP	24590-HLW -M6-HOP-P0001 -M6-HOP-P20001 -MK-HOP-P0001001 -MK-HOP-P0001002 -MK-HOP-P0001003 -MK-HOP-P0001004 -MKD-HOP-P0016 -N1D-HOP-P0010 -MVD-HOP-P0015 -MVD-HOP-P0016	Section 4.1.4.3; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-28
Wet Electrostatic Precipitator-Melter 1 HOP-WESP-00001 HOP-WESP-00002	HOP	24590-HLW -HOP-WESP-00001 -HOP-WESP-00002	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-28

Sub-system Description	**Sub-system Designation**	**Engineering Description (Drawing Nos., Specification Nos., etc.)**	**Narrative Description, Tables, and Figures**
High Efficiency Particulate Air Filters - Melters 1/2 -HOP-HEPA-1A/1B, -HOP-HEPA-2A/2B, -HOP-HEPA-00012A/B, -HOP-HEPA-00007A/7B, -HOP-HEPA-00008A/8B, -HOP-HEPA-00013A/B	HOP	**24590-HLW** -M6-HOP-P0010 -M6-HOP-P20010	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Activated Carbon Adsorber (HOP-ADBR-00001A/B) Activated Carbon Absorber (HOP-ADBR-00002A/B)	HOP	**24590-HLW** -M5-V17T-P0004 -M5-V17T-P20004 -M6-HOP-P0003 -M6-HOP-P20003 -MVD-HOP-P0015 -MVD-HOP-P0016 -WTP-3PS-MWKO-TP001	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
High Efficiency Mist Eliminators - Melters 1/2 -HOP-HEME-00001A/1B, -HOP-HEME-00002A/2B	HOP	**24590-HLW** -M6-HOP-P0002 -M6-HOP-P0009 -M6-HOP-P20009 -MKD-HOP-P0007 -MV-HOP-P0002001 -MV-HOP-P0002002 -MV-HOP-P0002003 -MVD-HOP-P0015 -MVD-HOP-P0016 -N1D-HOP-P0001	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-28
Thermal Catalytical Oxidation Unit	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Selective Catalytical Reduction Unit	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1,

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables, and Figures
			4A-4, 4A-29
Melter 1 Silver Mordenite Column HOP-ABS-00002, Melter 2 Silver Mordenite Column-HOP-ABS-00003	HOP	24590-HLW -M5-V17T-P0004 -M5-V17T-P20004 -M6-HOP-P0003 -M6-HOP-P0008 -M6-HOP-P20003 -M6-HOP-P20008 -MKD-HOP-P0014 -MKD-HOP-P0017 -NID-HOP-P0006 -3PS-MBTO-TP001	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Electric Heaters-HOP-HTR-00002A/1B;-	HOP	24590-HLW -M6-HOP-P0010	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Heat Exchangers-ME-HOP-HX-00002/4	HOP	24590-HLW -MED-HOP-P0012 -MED-HOP-P0017	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Pumps-HFP-EDUC-00001/2/3/4	HFP/HOP	24590-HLW -M6-HFP-P0001 -M6-HFP-P0002 -M6-HFP-P20001 -M6-HFP-P20002	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-27, 4A-28, 4A-29
Booster Fans-MA-HOP-FAN-00001A/1B/1C, MA-HOP-FAN-00009A/9B/9C	HOP	24590-HLW -MAD-HOP-P0018 -MAD-HOP-P0019 -MAD_HOP_P0020 -MAD-HOP-P0035 -MAD-HOP-P0036 -MAD-HOP-P0037	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29

Sub-system Description	**Sub-system Designation**	**Engineering Description (Drawing Nos., Specification Nos., etc.)**	**Narrative Description, Tables, and Figures**
HLW Stack	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Electric Heater (PJV-HTR-00002)	PJV (HLW Pulse Jet Ventilation Treatment System)	**24590-HLW** -M6-PJV-POOO1 -M5-V17T-P0005	RESERVED
High Efficiency Particulate Air Filters – Primary (PJV-HEPA-00004A) High Efficiency Particulate Air Filters – Standby Primary (PJV-HEPA-00004B) High Efficiency Particulate Air Filters – Secondary (PJV-HEPA-00005A) High Efficiency Particulate Air Filters – Standby Secondary (PJV-HEPA-00005B)	PJV (HLW Pulse Jet Ventilation Treatment System)	**24590-HLW** -M6-PJV-POOO2 -M5-V17T-P0005	RESERVED
Booster Fans (PJV-FAN-00002A/B)	PJV (HLW Pulse Jet Ventilation Treatment System)	**24590-HLW** -M6-PJV-POOO2 -M5-V17T-P0005	RESERVED

a. Requirements pertaining to the tanks in HLW Vitrification System Melter Feed System, Submerged Bed Scrubber/Condensate Vessels are specified in Permit Section III.10.E.

Table III.10.J.B. - HLW Vitrification Systems Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Maximum Allowable Liquid Height (inches)	Secondary Containment Volume (gallons)	Engineering Description (Drawing Nos., Specification Nos., etc.)
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.J.C. - .HLW Vitrification System Process and Leak Detection System Instruments and Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.J.D. – Maximum Feed-rates to HLW Vitrification System (RESERVED)

Description of Waste	Shakedown 1 and Post Demonstration Test	Shakedown 2 and Demonstration Test
Dangerous and Mixed Waste Feed Rate		
Ash Feed Rate		
Total Chlorine/Chloride Feed Rate		
Total Metal Feedrates		

Table III.10.J.E. - HLW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

Table III.10.J.F. - HLW Vitrification System Waste Feed Cut-off Parameters* (RESERVED)

Subsystem Designation	Instrument Tag Number	Parameter Description	Setpoints During Shakedown 1 and Post Demonstration Test	Setpoints During Shakedown 2 and Demonstration Test

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.J.D. of this Permit

III.10.K HLW Vitrification System – Long Term Miscellaneous Thermal Treatment Unit

For purposes of Permit Section III.10.K, where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "HLW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a HLW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

III.10.K.1 Requirements For HLW Vitrification System Beginning Normal Operation

Prior to commencing normal operations provided in Permit Section III.10.K, all requirements in Permit Section III.10.J shall have been met by the Permittees and approved by Ecology, including the following: The HLW Vitrification System Demonstration Test results and the revised Final Risk Assessment provided for in Permit Conditions III.10.C.11.c. or d. and Permit Section III.10.J, shall have been evaluated and approved by Ecology, Permit Tables III.10.K.D and F, as approved/modified pursuant to Permit Condition III.10.J.5, shall have been completed, submitted and approved pursuant to Permit Condition III.10.J.3.d.v. and Permit Table III.10.K.E, as approved/modified pursuant to Permit Condition III.10.J.5, shall have been completed, submitted and approved pursuant to Permit Conditions III.10.C.11.c. or d.

III.10.K.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340]

i. The Permittees shall maintain the design and construction of the HLW Vitrification System as specified in Permit Condition III.10.K.1, Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.1 through 10.17 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d. and III.10.J.5.f.

ii. The Permittees shall maintain the design and construction of all containment systems for the HLW Vitrification System as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.2 and 10.4 through 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d.

iii. Modifications to approved design, plans, and specifications in Attachment 51, of this Permit, for the HLW Vitrification System shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

iv. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer; registered, professional engineer; independent corrosion expert; independent, qualified installation inspector; installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new HLW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following HLW Vitrification system components (e.g., the venting piping, etc.), as

required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs [i.e., (a) through (g)]), in accordance with WAC 173-303-680.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

v. The Permittees shall ensure periodic integrity assessments are conducted on the HLW Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.J.5, over the term of this Permit, in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(3)(b) following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

vi. The Permittees shall address problems detected during the HLW Vitrification System integrity assessments specified in Permit Condition III.10.K.1.a.v. following the description of the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.

vii. All process monitors/instruments as specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.K.F.

viii. The Permittees shall install and test all process and leak detection system monitors/instruments, as specified in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v., in accordance with Attachment 51, Appendices 10.1, 10.2, and 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.

ix. No dangerous and/or mixed waste shall be treated in the HLW Vitrification System unless the operating conditions, specified under Permit Condition III.10.K.1.c. are complied with.

x. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melter).

xi. The Permittees shall operate the HLW Vitrification System to prevent spills and overflows using the description of controls and practices as required under WAC 173-

303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), WAC-173-303-806(4)(c)(ix)].

xii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiii. For all the HLW Vitrification System sub-systems not addressed in Permit Condition III.10.K.1.a.xii., the Permittees shall mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiv. The Permittees shall ensure that the secondary containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v. [WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xv. The Permittees must immediately and safely remove from service any HLW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.K.1.a.xvii.A through D, and F. The affected HLW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.K.1.a.xvii.E [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xvi. An impermeable coating, as specified in Attachment 51, Appendices 10.4, 10.5, 10.7, 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition III.10.J.5.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10. K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and/or mixed waste into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

xvii. The Permittees shall inspect all secondary containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c), WAC 173-303-640(6) in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the HLW Vitrification System shall be, at a minimum, managed as mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the

Permittees shall take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur.

E. If the source of the dangerous and/or mixed waste is determined to be a leak in from the primary HLW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the HLW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680, and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.K.1.a.iii.) the HLW Vitrification System, in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees shall document in the operating record actions/procedures taken to comply with A through E above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

xviii. If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C, listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

xix. All air pollution control devices and capture systems in the HLW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the HLW Vitrification

System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

xx. In all future narrative permit submittals, the Permittees shall include HLW Vitrification sub-system names with the sub-system designation.

xxi. For any portion of the HLW Vitrification System which has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

xxii. For each HLW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

III.10.K.1.b. Performance Standards

i. The HLW Vitrification System must achieve a destruction and removal efficiency (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC 173-303-680(2)]:

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DRE in this Permit Condition shall be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

W_{in}=mass feed-rate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

W_{out}=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

ii. Particulate matter emissions from the HLW Vitrification System shall not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)];

iii. Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System shall not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)];

iv. Dioxin and Furan TEQ emissions from the HLW Vitrification System shall not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)];

v. Mercury emissions from the HLW Vitrification System shall not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];

vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

ix. Hydrocarbon emission from the HLW Vitrification System shall not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system during demonstration testing required by this Permit), dry basis and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2) and (3)];

x. If the emissions from the HLW Vitrification System exceed the emission rates listed in Permit Table III.10.K.E, as approved pursuant to Permit Condition III.10.C.11.c. or d., the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and

C. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

The emission limits specified in Permit Conditions III.10.K.1.b.i. through x. above, shall be met for the HLW Vitrification System by limiting feed rates as specified in Permit Tables III.10.K.D and III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v., compliance with operating conditions specified in Permit Condition III.10.K.1.c. (except as specified in Permit Condition III.10.K.1.b.xii.), and compliance with Permit Condition III.10.K.1.b.xi.

xi. Treatment effectiveness, feed-rates, and operating rates for dangerous and/or mixed waste management units contained in the HLW Building, but not included in Permit

Table III.10.K.A, as approved/modified pursuant to Permit Condition III.10.J.5, shall be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with the assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

xii. Compliance with the operating conditions specified in Permit Condition III.10.K.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.K.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.K.1.c. is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.K.1.b.i. through x., the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.K.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)]

The Permittees shall operate the HLW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e. and f., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., except as modified pursuant to Permit Conditions III.10.J.3, III.10.K.1.b.x., III.10.K.1.b.xii., III.10.K.1.h., and in accordance with and the following:

i. The Permittees shall operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within the set-points specified in Permit Table III.10.K.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.K.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to HLW Vitrification System when all instruments specified on Permit Table III.10.I.F for measuring the monitored parameters fails or exceeds its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the HLW Vitrification System when any portion of the HLW Vitrification System is bypassed. The terms "bypassed" and "bypass event" as used in Permit

Sections III.10.J and K shall mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., the Permittees shall immediately, manually, cut-off the dangerous and/or mixed waste feed to the HLW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and/or mixed waste feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.K.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.K.1.c.ii., iii., and/or iv.

vii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first (31) exceedance including the information specified below. These dangerous and/or mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.K.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

viii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within a thirty (30) day period, the Permittees shall submit the written report required to be submitted pursuant to Permit Condition III.10.K.1.c.vii. to Ecology, on the first business day following the thirty-first exceedance. These dangerous and/or mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the set-point is deviated:

In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume dangerous and/or mixed waste feed to the HLW Vitrification System until this written report has been submitted; and

A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or mixed waste feed, or

B. Ecology has not, within seven (7) days, notified the Permittees in writing of the following:

1. The Permittees written report does not document that the corrective measures taken will minimize future exceedances; and

2. The Permittees must take further corrective measures and document that these further corrective measures will minimize future exceedances.

ix. If any portion of the HLW Vitrification System is bypassed while treating dangerous and/or mixed waste, it shall be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.K.1.c. and the performance standards specified in Permit Condition III.10.K.1.b. After such a bypass event, the Permittees shall perform the following actions:

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

x. The Permittees shall control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

xi. Compliance with the operating conditions specified in Permit Condition III.10.K.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.K.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.K.1.d. Inspection Requirements [WAC 173-303-680(3)]

i. The Permittees shall inspect the HLW Vitrification System in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

ii. The inspection data for HLW Vitrification System shall be recorded, and the records shall be placed in the WTP Unit operating record for HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.3, III.10.K.1.b.x., III.10.K.1.b.xii., and III.10.K.1.h.

III.10.K.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that the operating requirements established in the permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in the Attachment 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5, and as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.H.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.K.C and F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., in accordance with Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

III.10.K.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Unit operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and 5 as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

ii. The Permittees shall record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed waste feed processing time for the HLW Vitrification System;

B. Date/Time of all HLW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10J.3.d.v.

iv. The Permittees shall submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEM Calibration Error and Annual CEM Performance Specification Tests conducted in accordance with Permit Condition III.10.K.1.e.iii.

III.10.K.1.g. Closure

The Permittees shall close the HLW Vitrification System in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.K.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

i. Dioxin and Furan Emission Testing

A. Within eighteen (18) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall submit to Ecology for approval, a Dioxin and Furan Emission Test Plan (DFETP) for the performance of emission testing of the HLW Vitrification System gases for dioxin and furans during "Normal Operating Conditions" as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The DFETP shall include all elements applicable to dioxin and furan emission testing included in the "Previously Approved Demonstration Test Plan," applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test. "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v), that were established to maintain compliance with Permit Condition III.10.K.1.b.iv., as specified in Attachment 51, Appendix 10.15 of this Permit (as approved pursuant to Permit Condition III.10.J.3.d. and in accordance with III.10.K.1.b.xii. and III.10.K.1.c.xi.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded

during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one (31) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the DFETP approved, pursuant to Permit Condition III.10.K.1.h.i.A.

C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition III.10.K.1.h.i.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.i.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees shall implement these newly approved revised DFETPs every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System

were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees, pursuant to Permit Conditions III.10.K.1.h.i.E.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10. K.1.h.i.E.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c. or d., is exceeded for HLW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more

constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

ii. Non-organic Emission Testing

A. Within forty-eight (48) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards specified in Permit Conditions III.10.K.1.b.ii., iii., v., vi., and vii., and non-organic emissions as specified in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.K.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as specified in Permit Table III.10.K.E, as specified in Attachment 51, Appendix 10.15 of this Permit (as approved pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D, as approved/modified pursuant to

Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.ii.A.

C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition III.10.K.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees shall implement these newly approved revised RDTP, every sixty (60) months from the previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified pursuant to WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., is exceeded for HLW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation

findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and III.10.K.F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.ii.F.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.K.1.h.ii.F.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must

include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

iii. Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.K.1.b.viii. and ix., and emissions as specified on Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., not addressed under Permit Conditions III.10.K.1.h.i. or ii. under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit Condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.K.1.b.viii. and ix., and emissions as specified on Permit Table III.10.K.E, not addressed under Permit Conditions III.10.K.1.h.i. or ii. as specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.3.d., and in accordance with Permit Conditions III.10.K.1.b.xii. and III.10.K.1.c.xi. are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.iii.A.

C. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Condition III.10.K.1.h.iii.A to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with Permit Condition WAC 173-303-680(2) and (3).

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.iii.D.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10.K.1.h.iii.D.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit

Conditions II.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

E. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Condition III.10.C.11.c. or d., is exceeded for HLW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of the exceedance of the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

1
2 **Table III.10.K.A - HLW Vitrification System Description**
3

Sub-system Description	Subsystem Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Feed Preparation Vessel -VSL-00001/5[a], HLW Melter Feed Vessel VSL-00002/6[a] (HLW Melter Feed Process System)	HFP HCP	**24590-HLW** -M5-V17T-P0001 -M6-HFP-P0001 -M6-HFP-P20001 -M6-HFP-P20002 -PER-J-04-0001 -3YD-HFP-00001	Section 4.1.4.1; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-26
HLW Melter 1	HMP	RESERVED	Section 4.1.4.2; Figures 4A-1, 4A-4, 4A-27
HLW Glass Product System-Melter 1	HMP	RESERVED	Section 4.1.4.2; Figures 4A-1, 4A-4, 4A-27
Film Cooler - Melter 1	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-27
Submerged Bed Scrubber /Condensate Collection Vessels HOP-SCB-00001/2 [a] - Melter 1/2	HOP	**24590-HLW** -M6-HOP-P0001 -M6-HOP-P20001 -MVD-HOP-P0015 -MVD-HOP-P0016 -MK-HOP-P0001001 -MK-HOP-P0001002 -MK-HOP-P0001003 -MK-HOP-P0001004 -MKD-HOP-P0016 -N1D-HOP-P0010	Section 4.1.4.3; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-28
Wet Electrostatic Precipitator-Melter 1 HOP-WESP-00001 HOP-WESP-00002	HOP	**24590-HLW** HOP-WESP-00001 HOP-WESP-00002	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-28
High Efficiency Particulate Air Filters - Melters 1/2 -HOP-HEPA-1A/1B, HOP-HEPA-2A/2B, HOP-HEPA-0000&A/7B,HOP-HEPA-00012A/B HOP-HEPA-00008A/8B, HOP-HEPA-00013A/B	HOP	**24590-HLW** -M6-HOP-P0010 -M6-HOP-P20010	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Activated Carbon (HOP-ADBR-00001A/B) Activated Carbon Absorber (HOP-	HOP	**24590-HLW** -M5-V17T-P0004 -M5-V17T-P20004 -M6-HOP-P0003	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29

ADBR-00002A/B)		-M6-HOP-P20003 -MVD-HOP-P0015 -MVD-HOP-P0016 -WTP-3PS-MWKO-TP001	
High Efficiency Mist Eliminators- HOP-HEME-00001A/1B, HOP-HEME-00002A/2B	HOP	**24590-HLW** -M6-HOP-P0002 -M6-HOP-P20009 -MKD-HOP-P0007 -MV-HOP-P0002001 -MV-HOP-P0002002 -MV-HOP-P0002003 -N1D-HOP-P0001	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-28
Thermal Catalytical Oxidation Unit	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Selective Catalytical Reduction Unit	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Melter 1 Silver Mordenite Column - HOP-ABS-00002, Melter 2 Silver Mordenite Column -HOP-ABS-00003	HOP	**24590-HLW** -M5-V17T-P0004 -M5-V17T-P20004 -M6-HOP-P0003 -M6-HOP-P0004 -M6-HOP-P0006 -M6-HOP-P0008 -M6-HOP-P20003 -M6-HOP-P20008 -MKD-HOP-P0014 -MKD-HOP-P0017 -MV-HOP-P0001 -MVD-HOP-P0001 -MVD-231-00001 -N1D-HOP-P0006 -3PS-MBTO-TP001	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Electric Heaters -HOP-HTR-00002A/1B, HOP-HTR-00005A/5B	HOP	**24590-HLW** -M6-HOP-P0010 -M6-HOP-P20010	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Heat Exchangers-ME-HOP-HX-00002/4	HOP	**24590-HLW** -MED-HOP-P0012 -MED-HOP-P0017	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Pumps-HFP-EDUC-00001/2/3/4	HFP/HOP	**24590-HLW** -M6-HFP-P0001 -M6-HFP-P0002 -M6-HFP-P20001 -M6-HFP-P20002	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-27, 4A-28, 4A-29
Booster Fans-MA-HOP-FAN-00001A/1B/1C, MA-HOP-FAN-00009A/9B/9C	HOP	**24590-HLW** -MAD-HOP-P0018 -MAD-HOP-P0019	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29

		-MAD_HOP_P0020 -MAD-HOP-P0035 -MAD-HOP-P0036 -MAD-HOP-P0037	
HLW Stack	HOP	RESERVED	Section 4.1.4.3; Figures 4A-1, 4A-4, 4A-29
Electric Heater (PJV-HTR-00002)	PJV (HLW Pulse Jet Ventilation Treatment System)	**24590-HLW** -M6-PJV-POOO1 -M5-V17T-P0005	RESERVED
High Efficiency Particulate Air Filters – Primary (PJV-HEPA-00004A) High Efficiency Particulate Air Filters – Standby Primary (PJV-HEPA-00004B) High Efficiency Particulate Air Filters – Secondary (PJV-HEPA-00005A) High Efficiency Particulate Air Filters – Standby Secondary (PJV-HEPA-00005B)	PJV (HLW Pulse Jet Ventilation Treatment System)	**24590-HLW** -M6-PJV-POOO2 -M5-V17T-P0005	RESERVED
Booster Fans (PJV-FAN-00002A/B)	PJV (HLW Pulse Jet Ventilation Treatment System)	**24590-HLW** -M6-PJV-POOO2 -M5-V17T-P0005	RESERVED

a. Requirements pertaining to the tanks in HLW Vitrification System Melter Feed System, Submerged Bed Scrubber/Condensate Vessels are specified in Permit Section III.10.E.

Table III.10.K.B - HLW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specification Nos., etc.)
RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.K.C - HLW Vitrification System Process and Leak Detection System Instruments and Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.K.D - Maximum Feed-rates to HLW Vitrification System (RESERVED)

Description of Waste	Normal Operation
Dangerous and/or mixed waste Feed Rate	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feed-rates	

Table III.10.K.E- HLW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

TABLE III.10.K.F - HLW Vitrification System Waste Feed Cut-off Parameters* [1](RESERVED)

Sub-system Designation	Instrument Tag Number	Parameter Description	Set-points During Normal Operation

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.K.D. of this Permit

OPERATING UNIT 11

Integrated Disposal Facility

This document sets forth the operating conditions for the Integrated Disposal Facility (IDF).

II.11.A COMPLIANCE WITH APPROVED PERMIT

The Permittees shall comply with all requirements set forth in the Integrated Disposal Facility (IDF) Permit conditions, the Appendices specified in condition III.11.A and the Amendments specified in Condition III.11.B through III.11.I. All subsections, figures, and tables included in these portions are enforceable unless stated otherwise:

OPERATING UNIT 11, PERMIT ATTACHMENT 52:

Part A, Dangerous Waste Permit, Revision 3, dated 3/2005

Chapter 2.0	Topographic Map Description
Chapter 3.0	Waste Analysis Plan
Chapter 4.0	Process Information
Chapter 5.0	Ground Water Monitoring
Chapter 6.0	Procedure to Prevent Hazards
Chapter 7.0	Contingency Plan
Chapter 8.0	Personnel Training
Chapter 11.0	Closure and Post Closure Requirements
Chapter 13.0	Other Federal and State Laws
Appendix 4A	Design Report (as applicable to critical systems)
Appendix 4B	Construction Quality Assurance Plan
Appendix 4C	Response Action Plan
Appendix 4D	Technical specifications document (RPP-18-489 Rev 0)
Appendix 7A	Building Emergency Plan (As applicable in Chapter 7)
Appendix 8A	Training Plan

General and Standard Hanford Facility RCRA Permit, WA7890008967 (Permit) conditions (Part I and Part II conditions) applicable to the IDF are identified in Permit Attachment 3 (Permit Applicability Matrix).

III.11.B. **AMENDMENTS TO THE APPROVED PERMIT**

III.11.B.1. Portions of Permit Attachment 4, *Hanford Emergency Management Plan* that are not made enforceable by inclusion in the applicability matrix for that document, are not made enforceable by reference in this document.

III.11.B.2 Permittees must comply with all applicable portions of the Permit. The facility and unit-specific recordkeeping requirements are distinguished in the General Information Portion of the Permit, and are tied to the Permit conditions.

III.11.B.2 Permittees must comply with all applicable portions of the Permit. The facility and unit-specific recordkeeping requirements are distinguished in the General Information Portion of the Permit, and are tied to the Permit conditions.

III.11.B.3 The scope of this Permit is restricted to the landfill construction and operation as necessary to dispose of: 1) immobilized low activity waste from the WTP, and 2) the Demonstration Bulk Vitrification System and IDF operational waste as identified in Chapter 4.0. Future expansion of the RCRA trench, or disposal of other wastes not specified in this Permit, is prohibited unless authorized via modification of this Permit.

III.11.B.4 In accordance with WAC 173-303-806(11)(d), this Permit shall be reviewed every five (5) years after the effective date and modified, as necessary, in accordance with WAC 173-303-830(3).

III.11.C **DESIGN REQUIREMENTS**

III.11.C.1 IDF is designed in accordance with WAC 173-303-665 and WAC 173-303-640 as described in Chapter 4.0. Design changes impacting IDF critical systems shall be performed in accordance with Conditions III.11.D.1.d.i and III.11.D.1.d.ii.

IDF Critical Systems[1] include the following: The leachate collection and removal system (LCRS), leachate collection tank (LCT), leak detection system (LDS), liner system (LS), and closure cap. H-2 Drawings for the LCRS, LCT, LDS, and LS are identified in Appendix 4A, Section 3 of this Permit. Drawings for the closure cap will be provided pursuant to Condition III.11.C.1.b.

III.11.C.1.a The Permittees shall construct and operate the IDF in accordance with all specifications contained in RPP-18489 Rev 0. Critical systems, as defined in the definitions section of the Site-Wide RCRA Permit, are identified in Appendix 4A, Section 1 of this Permit.

III.11.C.1.b Landfill Cap

At final closure of the landfill, the Permittees shall cover the landfill with a final cover (closure cap) designed and constructed [WAC 173-303-665(6), WAC 173-303-806(4)(h)] to: Provide long-term minimization of migration of liquids through the closed landfill; Function with minimum maintenance; Promote drainage and minimize erosion or abrasion of the cover; Accommodate settling and subsidence so that the cover's integrity is maintained; and have a permeability less than or equal to the permeability of any bottom liner system or natural sub soils present.

III.11.C.1.c Compliance Schedule

Proposed conceptualized final cover design is presented in Chapter 11 (Closure and Financial Assurance). Six months prior to start of construction of IDF landfill final cover (but no later than 6 months prior to acceptance of the last shipment of waste at the IDF), the Permittees shall submit IDF landfill final cover design, specifications and CQA plan to Ecology for review and approval. No construction of the final cover may proceed until Ecology approval of the final design is given, through a permit modification.

III.11.C.1.d The Permittees shall notify Ecology at least sixty (60) calendar days prior to the date it expects to begin closure of the IDF landfill in accordance with WAC 173-303-610(c).

III.11.C.2 Design Reports

III.11.C.2.a New Tank Design Assessment Report

Permittees shall generate a written report in accordance with WAC 173-303-640(3)(a), providing the results of the leachate collection tank system design assessment. The report shall be reviewed and certified by an Independent Qualified Registered Professional Engineer (IQRPE)[2] in accordance with WAC-173-303-810(13)(a).

[2] "Independent qualified registered professional engineer," as used here and elsewhere with respect to Operating Unit 11, means a person who is licensed by the state of Washington, or a state which has reciprocity with the state of Washington as defined in RCW 18.43.100, and who is not an employee of the owner or operator of the facility for which construction or modification certification is required. A qualified professional engineer is an engineer with expertise in the specific area for which a certification is given.

III.11.C.2.b Compliance Schedule

Permittees shall submit the leachate collection tank design assessment report to Ecology along with the IQRPE certification, prior to construction of any part of the tank system including ancillary equipment.

III.11.D CONSTRUCTION REQUIREMENTS

III.11.D.1 Construction Quality Assurance

III.11.D.1.a Ecology shall provide field oversight during construction of critical systems. In cases where an Engineering Change Notices (ECN) and/or Non Conformance Report (NCR) is required, Ecology and the Permittees shall follow steps for processing changes to the approved design per Conditions III.11.D.1.d.i and III.11.D.1.d.ii.

III.11.D.1.b Permittees shall implement the Construction Quality Assurance Plan (CQA plan) (Appendix 4B of the permit) during construction of IDF.

III.11.D.1.b.i The Permittees will not receive waste in the IDF until the owner or operator has submitted to Ecology by certified mail or hand delivery a certification signed by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of WAC173-303-665 (2)(h) or (j); and the procedure in WAC 173-303-810 (14)(a) has been completed. Documentation supporting the CQA officer's certification shall be furnished to Ecology upon request.

III.11.D.1.c Construction inspection reports

III.11.D.1.c.i Permittees shall submit a report documenting the results of the leachate tank installation inspection. This report must be prepared by an independent, qualified installation inspector or a professional independent, qualified, registered, professional engineer either of whom is trained and experienced in the proper installation of tank systems or components. The Permittees will remedy all discrepancies before the tank system is placed in use. This report shall be submitted to Ecology 90 days prior to IDF operation and be included in the IDF Operating Record. [WAC-173-303-640(3)(h)].

III.11.D.1.d ECN/NCR Process for Critical Systems

Portions of the following conditions for processing engineering change notices and non-conformance reporting were extracted from and supersede Site Wide General Permit Condition II.L.

III.11.D.1.d.i Engineering Change Notice for Critical Systems

During construction of the IDF, the Permittees shall formally document changes to the approved designs, plans, and specifications, identified in Appendices 4A, 4B, 4C, and 4D of this permit, with an Engineering Change Notice (ECN). The Permittees shall maintain all ECNs in the IDF unit-specific Operating Record and shall make them available to Ecology upon request or during the course of an inspection. The Permittees shall provide to Ecology copies of proposed ECNs affecting any critical system within five (5) working days of initiating the ECN. Identification of critical systems is included in Condition III.11.C.1 and Appendix 4A of this permit. Within five (5) working days, Ecology will review a proposed ECN modifying a critical system and inform the Permittees whether the proposed ECN, when issued, will require a Class 1, 2, or 3 Permit modification.

III.11.D.1.d.ii Non-conformance Reporting for Critical Systems

III.11.D.1.d.ii.a During construction of the IDF, the Permittees shall formally document with a Nonconformance Report (NCR), any work completed which does not meet or exceed the standards of the approved design, plans and specifications, identified in Appendices 4A, 4B, 4C and 4D of this permit,. The Permittees shall maintain all NCRs in the IDF unit-specific Operating Record and shall make them available to Ecology upon request, or during the course of an inspection

III.11.D.1.d.ii.b The Permittees shall provide copies of NCRs affecting any critical or regulated system to Ecology within five (5) working days after identification of the nonconformance. Identification of critical systems is included in Condition III.11.C.1 and Appendix 4A of this permit. Ecology will review a NCR affecting a critical system and notify the Permittees within five (5) working days, in writing, whether a Permit modification is required for any nonconformance, and whether prior approval is required from Ecology before work proceeds, which affects the nonconforming item. .

III.11.D.1.d.iii As-Built Drawings

Upon completing construction of IDF, the Permittees shall produce as-built drawings of the project, which incorporate the design and construction modifications resulting from all project ECNs and NCRs, as well as modifications made pursuant to WAC 173-303-830. The Permittees shall place the drawings into the Operating Record within twelve (12) months of completing construction.

III.11.D.2 The Permittees shall not reduce the minimum frequency of destructive testing less than one test per 500 feet of seam, without prior approval in writing from Ecology

III.11.E **GROUND WATER AND GROUND WATER MONITORING**

Ground water shall be monitored in accordance with WAC 173-303 and the provisions contained in the Ecology-approved facility ground water monitoring plan (Chapter 5.0). All wells used to monitor the ground water beneath the unit shall be constructed in accordance with the provisions of WAC-173-160.

III.11.E.1 Ground Water Monitoring Program

III.11.E.1.a Prior to initial waste placement in the IDF landfill, the Permittees shall sample all ground water monitoring wells in the IDF network twice quarterly for one first year to determine baseline conditions. For the first sampling event (and only the first), samples for each well will include all constituents in 40 CFR 264 Appendix IX. Thereafter, sampling will include only those constituents as specified in Chapter 5.0, Table 5-2: chromium (filtered and unfiltered the first year to compare results), specific conductance, TOC, TOX, and pH. Other constituents to be monitored but not statistically compared include alkalinity, anions, ICP metals, and turbidity. These will provide important information on hydrogeologic characteristics of the aquifer and may provide indications of encroaching contaminants from other facilities not associated with IDF.

III.11.E.1.b After the baseline monitoring is completed, and data is analyzed, the Permittees and Ecology shall assess revisions to Chapter 5.0, Table 5-2. Subsequent samples will be collected semi-annually and will include constituents listed in Table 5-2 as approved by Ecology. All data analysis will employ Ecology approved statistical methods pursuant to WAC 173-303-645. Changes to chapter 5.0 will be subject to the permit modifications procedures under WAC 173-303-830.

III.11.E.1.c All constituents used as tracers to assess performance of the facility through computer modeling should be sampled at least annually to validate modeling results. Groundwater monitoring data and analytes to be monitored will be reviewed periodically as defined in Chapter 5.0 of this permit.

III.11.E.1.d Upon Ecology approval of the leachate monitoring plan, leachate monitoring and groundwater monitoring activities should be coordinated as approved by Ecology to form an effective and efficient means of monitoring the performance of the IDF facility.

III.11.E.1.e Ground water monitoring data shall be reported to Ecology on an annual basis beginning on March 1 after the issue date of this permit and annually on March 1after that.

III.11.F **LEACHATE COLLECTION COMPONENT MANAGEMENT**

Permittees shall design, construct, and operate all leachate collection systems to minimize clogging during the active life and post closure period

III.11.F.1 Leachate Collection and Removal System (LCRS)

III.11.F.1.a At least 120 days prior to initial waste placement in the IDF, the Permittees shall submit a Leachate monitoring plan to Ecology for review, approval, and incorporation into the

permit. Upon approval by Ecology, this plan will be incorporated into the Permit as a class 1' modification. The Permittees shall not accept waste into the IDF until the requirements of the leachate monitoring plan have been incorporated into this permit.

III.11.F.1.b Leachate in the LCRS (primary sump) shall be sampled and analyzed monthly for the first year of operation of the facility and quarterly thereafter (pursuant to WAC 173-303-200). Additionally, leachate shall be sampled and analyzed to meet waste acceptance criteria at the receiving treatment storage and disposal facility.

III.11.F.1.c Permittees shall manage the leachate in the LCRS system in a manner that does not allow the fluid head to exceed 30.5 cm above the flat 50-foot by 50-foot LCRS sump HDPE bottom liner except for rare storm events as discussed in Chapter 4.0, Section 4.3.6.1 and the LCRS sump trough [(WAC 173-303-665(2)(h)(ii)(B). Liquid with a depth greater than 30.5 cm above the SLDS liner will be removed at the earliest practicable time after detection (not to exceed 5 working days).

III.11.F.1.d After initial waste placement, Permittees shall manage all leachate from the permitted cell as dangerous waste (designated with Dangerous Waste Number F039) in accordance with WAC 173- 303.

III.11.F.2 Monitoring and Management of Leak Detection System (LDS/ secondary sump)

III.11.F.2.a Permittees shall manage the leachate in the LDS system in a manner that does not allow the fluid head to exceed 30.5 cm above the LDS liner (WAC 173-303-665(2)(h)(ii)(B).

III.11.F.2.b Permittees shall monitor and record leachate removal for comparison to the Action Leakage Rate (ALR) as described in Appendix 4C, Response Action Plan. If the leachate flow rate in the LDS exceeds the ALR, the Permittees shall implement the Ecology approved response action plan (Appendix 4C).

III.11.F.2.c Leachate from the LDS (secondary sump) shall be sampled semi-annually if a pumpable quantity of leachate is available for sampling.

III.11.F.2.d Accumulated liquid of pumpable quantities in the LDS will be managed in a manner that does not allow the fluid head to exceed 30.5 cm above the LDS liner [WAC 173-303-665(2)(h)(i)(C)(iii)]. Liquid with a depth greater than 30.5 cm above the LDS liner will be removed at the earliest practicable time after detection (not to exceed 5 working days).

III.11.F.2.e Permittees shall manage all leachate from the permitted cell as F039 dangerous waste in accordance with WAC 173- 303.

III.11.F.3 Monitoring and Management of the Secondary Leak Detection System (SLDS)

III.11.F.3.a The Permittees shall submit to Ecology for approval a sub-surface liquids monitoring and operations plan (SLMOP) for the SLDS to include the following: monitoring frequency, pressure transducer configuration, liquid collection and storage processes, sampling and analysis and response actions. The SLMOP shall be approved by Ecology prior to placement of waste in the IDF, and incorporated into the Permit as a Class 1' modification.

III.11.F.3.b Permittees shall monitor and manage the SLDS (tertiary sump) pursuant to the approved sub-surface liquids monitoring and operations plan.

III.11.F.3.c Accumulated liquid of pumpable quantities in the SLDS will be managed in a manner that does not allow the fluid head to exceed 30.5 cm above the SLDS liner [WAC 173-303-665(2)(h)(i)(C)(iii)]. Liquid with a depth greater than 30.5 cm above the SLDS liner will be removed at the earliest practicable time after detection (not to exceed 5 working days).

III.11.F.3.d Permittees shall manage all leachate from the permitted cell as dangerous waste in accordance with WAC 173- 303.

III.11.G CONSTRUCTION WATER MANAGEMENT

III.11.G.1 During construction, it is anticipated that liquids will accumulate on top of all liners and sumps. Permittees shall manage the construction wastewater in accordance with State Waste Discharge Permit ST 4511.

III.11.G.2 Liquid accumulation within the LCRS, LDS, and SLDS prior to initial waste placement will be considered construction wastewater (i.e., not leachate).

III.11.H LANDFILL LINER INTEGRITY MANAGEMENT AND LANDFILL OPERATIONS

III.11.H.1 Permittees shall design, construct, and operate the landfill in a manner to protect the liners from becoming damaged. Temperature: Waste packages with elevated temperatures shall be evaluated and managed in a manner to maintain the primary (upper) liner below the design basis temperature for the liner (e.g.,160F). Weight: Waste, fill material and closure cover shall be placed in a manner that does not exceed the allowable load bearing capacity of the liner (weight per area 13,000 lb/ft2). Puncture: At least 3 feet of clean backfill material shall be placed as an operations layer over the leachate collection and removal system to protect the system from puncture damage.

III.11.H.1.a All equipment used for construction and operations inside of the IDF shall meet the weight limitation as specified in condition III.H.1. Only equipment that can be adequately supported by the operations layer as specified in condition III.H.1 (e.g., will not have the potential to puncture the liner) shall be used inside of the IDF. All equipment used for construction and operations outside of the IDF shall not damage the berms. Changes to any equipment will follow the process established by condition II.R of the site wide permit. Within 120 days from the effective date is the permit a process for demonstrating compliance with this condition shall be submitted for review by Ecology. This process will be incorporated into appropriate IDF operating procedures prior to IDF operations.

III.11.H.2 The Permittees shall construct berms and ditches to prevent run-on and run-off in accordance with the requirements of Section 4.3.8 of this permit. Before the first placement of waste in the IDF, the Permittees shall submit to Ecology a final grading and topographical map on a scale sufficient to identify berms and ditches used to control run-on and run-off. Upon approval, Ecology will incorporate these maps into the permit as a class 1' modification.

III.11.H.3 The Permittees shall operate the RCRA IDF Cell (Cell1) in accordance with WAC 173-303-665(2) and the operating practices described in Chapters 3, 4, 6, 7, 8 and Appendix 4A, Section 1, subsection 7, except as otherwise specified in this Permit.

III.11.H.4 The Permittees shall maintain a permanent and accurate record of the three-dimensional location of each waste type, based on grid coordinates, within the RCRA IDF Cell (Cell1) in accordance with WAC 173-303-665(5).

III.11.H.5 The Permittees shall inspect the landfill in accordance with WAC 173-303-665(4)(b) and Chapter 6 of this permit, except as otherwise specified in this Permit.

III.11.I WASTE ACCEPTANCE CRITERIA

The only acceptable waste form approved for disposal at the RCRA cell of IDF are IDF operational waste, Immobilized Low Activity Waste (ILAW) in glass form from the Waste Treatment Plant (WTP) Low Activity Waste (LAW) Vitrification facility and ILAW from the Bulk Vitrification Research Demonstration and Development facility (up to 50 boxes). Specifics about waste acceptance criteria for each of these wastes are detailed below.

No other waste forms may be disposed at the RCRA cell of IDF unless authorized via a Permit modification request. Requests for Permit modifications must be accompanied by an analysis adequate for Ecology to comply with SEPA, as well as by a risk assessment and groundwater modeling to show the environmental impact. Permit Condition III.11.I.6 outlines the process by which waste sources in the IDF are modeled in an ongoing risk budget and a ground water impact analysis.

III.11.I.1 Six months prior to IDF operations Permittees shall submit to Ecology for review, approval, and incorporation into the permit, all waste acceptance criteria (WAC) to address, at a minimum, the following: physical/chemical criteria, liquids and liquid containing waste, land disposal restriction treatment standards and prohibitions, compatibility of waste with liner, gas generation, packaging, handling of packages, minimization of subsidence.

III.11.I.1.a All containers/packages shall meet void space requirements pursuant to WAC 173-303-665(12).

III.11.I.1.b Compliance Schedule

III.11.I.1.b.i Six months prior to IDF operations, the Permittees shall submit to Ecology for review, approval, and incorporation into the permit any necessary modifications to the IDF WAP (Appendix 3A of the permit application, DOE/RL-2003-12, Rev 1).

III.11.I.2 ILAW Waste Acceptance Criteria

The only ILAW forms acceptable for disposal at IDF are: (1) approved glass canisters that are produced in accordance with the terms, conditions, and requirements of the WTP portion of the Permit, and (2) the 50 bulk vitrification test boxes as specified in the DBVS test plans.

To assure protection of human health and the environment, it is necessary that the appropriate quality of glass be disposed at IDF. The LDR Treatment Standard for eight metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), when associated with High Level Waste is HLVIT (40 CFR 268). Because these metals are constituents in the Hanford Tanks Waste, the LDR standard for ILAW disposed to IDF is HLVIT.

For any ILAW glass form(s) that DOE intends to dispose of in IDF, DOE will provide to Ecology for review, an ILAW Waste Form Technical Requirements Document (IWTRD). The IWTRD will contain:

III.11.I.2.a WTP ILAW Waste Acceptance Criteria

III.11.I.2.a.i A description of each specific glass formulation that DOE intends to use including a basis for why each specific formulation is proposed for use, which specific tank wastes the glass formulation is proposed for use with, the characteristics of the glass that are key to satisfactory performance (e.g., VHT, PCT, and TCLP and/or other approved performance testing methodologies that the parties agree are appropriate and necessary), the range in key characteristics anticipated if the specific glass formulation is produced on a production basis with tank waste, and the factors that DOE must protect against in producing the glass to ensure the intended glass characteristics will exist in the actual ILAW.

III.11.I.2.a.ii A performance assessment that provides a reasonable basis for assurance that each glass formulation will, once disposed of in IDF in combination with the other waste volumes and waste forms planned for disposal at the entire Integrated Disposal Facility, be adequately protective of human health and the environment; and will not violate or be projected to violate all applicable state and federal laws, regulations and environmental standards.

Within 30 days of a request by Ecology, the Permittees shall provide a separate model run using Ecology's assumptions and model input.

III.11.I.2.a.iii A description of production processes including management controls and quality assurance/quality control requirements that assure that glass produced for each formulation will perform in a reasonably similar manner to the waste form assumed in the performance assessment for that formulation.

III.11.I.2.a.iv The Permittees shall update the IWTRD consistent with the above requirements for review by Ecology consistent with their respective roles and authority as provided under the TPA. Ecology comments shall be dispositioned through the Review Comment Record (RCR) process and will be reflected in further modeling to modify the IDF ILAW waste acceptance as appropriate. The initial IWTRD shall be submitted no later than January 2007, or if later than this date, as agreed to by Ecology. At a minimum, the Permittees shall submit updates to the IWTRD to Ecology every five years or more frequently if either of the following conditions exist:

- The Permittees submits a permit modification request allowing additional waste forms to be disposed of at IDF,

- The WTP of other vitrification facility change their glass formulations from those previously included in the ITRWD.

III.11.I.2.a.v The Permittees shall not dispose of any WTP ILAW not described and evaluated in the IWTRD.

III.11.I.3 ILAW Waste Acceptance Criteria Verification

III.11.I.3.a Six months prior to disposing of ILAW in the IDF, the Permittees will submit an ILAW verification plan to Ecology for review and approval. This plan will be coordinated with WTP, Ecology, and the Permittees personnel. This plan will outline the specifics of verifying ILAW waste acceptance through WTP operating parameters, and/or glass sampling. The Plan will include physical sampling requirements for batches, glass formulations, and/or feed envelopes.

III.11.I.4 Demonstration Bulk Vitrification System (DBVS) Bulk Vitrification Waste Acceptance Criteria

III.11.I.4.a Bulk Vitrification waste forms that are acceptable to be disposed of at IDF are up to 50 boxes of vitrified glass produced pursuant to the DBVS RD&D Permit from processing Hanford Tank S-109 tank waste.

III.11.I.4.b If Bulk Vitrification is selected as a technology to supplement the Waste Treatment Plant, the IDF portion of the Permit will need to be modified to accept Bulk Vitrification Full Scale production waste forms. This modification will need to be accompanied by appropriate TPA changes (per M-062 requirements) and adequate risk assessment information sufficient for the Department of Ecology to meet its SEPA obligations.

III.11.I.4.c DBVS Waste Acceptance Verification will occur on 100% of the waste packages. Pursuant to the DBVS RD&D Permit, a detailed campaign test report will be produced and submitted to Ecology detailing results of all testing performed on each waste package that is produced. IDF personnel shall review these reports to verify that the waste packages meet IDF Waste Acceptance Criteria.

III.11.I.4.d The Permittees shall not dispose of any waste forms that do not comply with all appropriate and applicable treatment standards, including all applicable Land Disposal Restrictions (LDR).

III.11.I.5 Modeling – Risk Budget Tool

III.11.I.5.a The Permittees must create and maintain a modeling - risk budget tool, which models the future impacts of the planned IDF waste forms (including input from analysis performed as specified in conditions III.11.I.2.a through III.11.I.2.a.ii above) and their impact to underlying vadose and ground water. This model will be updated at least every 5 years beginning no more than one year after the issuance date of this permit and provided to Ecology for review. The model will be updated more frequently if needed, to support permit modifications or SEPA Threshold Determinations whenever a new waste stream or significant expansion is being proposed for the IDF. This modeling-risk budget tool shall be conducted in manner that is consistent with state and federal requirements, and represents a cumulative risk analysis of all waste previously disposed of in the entire IDF (both cell 1 and cell 2) and those wastes expected to be disposed of in the future for the

entire IDF. The groundwater impact should be modeled in a concentration basis and should be compared against various performance standards including but not limited to drinking water standards (40 CFR 141 and 40 CFR 143). Ecology will review modeling assumptions, input parameters, and results and will provide comments to the Permittees. Ecology comments shall be dispositioned through the Review Comment Record (RCR) process and will be reflected in further modeling to modify the IDF ILAW waste acceptance as appropriate.

III.11.I.5.a.i The modeling-risk budget tool will include a sensitivity analysis reflecting parameters and changes to parameters as requested by Ecology.

III.11.I.5.a.ii If these modeling efforts indicate results within 75% of a performance standard [including but not limited to federal drinking water standards (40 CFR 141 and 40 CFR 143)], Ecology and the Permittees will meet to discuss mitigation measures or modified waste acceptance criteria for specific waste forms.

III.11.I.5.a.iii When considering all the waste forms to be disposed of in IDF, the Permittees shall not dispose of any waste that will result (through forward looking modeling or in real groundwater concentrations data) in an violation of any state or federal regulatory limit, specifically including but not limited to drinking water standards for any constituent as defined in 40 CFR 141 and 40 CFR 143.

III.11.I.6 The Permittees shall not dispose of any waste that is not in compliance with state and federal requirements as identified in Chapter 13.0.

III.11.I.6.a In accordance with DOE's authority under the Atomic Energy Act of 1954, as amended and other applicable law, prior to disposing of any mixed immobilized low-activity waste (ILAW) in the IDF, DOE will certify to the State of Washington that it has determined that such ILAW is not high-level waste and meets the criteria and requirements outlined in DOE's consultation with the U.S. Nuclear Regulatory Commission beginning in 1993 (Letter from R.M Bernero, USNRC to J. Lytle, USDOE, dated March 2, 1993; Letter from J Kinzer, USDOE, to C. J, Paperiello, USNRC, Classification of Hanford Low-Activity Tank Waste Fraction, dated March 7, 1996; and Letter from C.J. Paperiello, USNRC, to J. Kinzer, USDOE, Classification of Hanford Low-Activity Tank Waste Fraction, dated June 9, 1997). While the requirement to provide such certification is an enforceable obligation of this permit, the provision of such certification does not convey, or purport to convey, authority to Ecology to regulate the radioactive hazards of the waste under this permit.

III.11.I.7 IDF Operational Waste Acceptance Criteria

IDF operational activities (including decontamination, cleanup, and maintenance) will generate a small amount of waste. Waste that can meet IDF waste acceptance without treatment will be disposed of at the IDF. All other IDF operational waste will be managed pursuant to WAC 173-303-200.

OPERATING UNIT 15 UNIT-SPECIFIC CONDITIONS

331-C Storage Unit

The 331-C Storage Unit is a dangerous waste storage unit located in the 300 Area. This document sets forth the operating conditions for the 331-C Storage Unit.

III.15.A COMPLIANCE WITH PERMIT CONDITIONS

The Permittees shall comply with all requirements set forth in the Hanford Facility Dangerous Waste Permit including all approved modifications. All chapters, subsections, figures, tables, and appendices included in the following unit-specific Permit Conditions are enforceable in their entirety.

In the event that the Part III-Unit-Specific Conditions for Operating Unit 15, 331-C Storage Unit conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit-specific conditions for Operating Unit 15, 331-C Storage Unit prevail.

OPERATING UNIT 15:

Chapter 1.0	Part A, Dangerous Waste Permit, Revision, dated December 15, 2006.
Chapter 2.0	Unit Description, dated July 2006
Chapter 3.0	Waste Analysis Plan, dated July 2006
Chapter 4.0	Process Information, dated July 2006
Chapter 5.0	Groundwater Monitoring (not applicable)
Chapter 6.0	Procedures to Prevent Hazards (also refer to Permit Attachment 3, §6.1)
Chapter 7.0	Contingency Plan, dated July 2006.
Chapter 11.0	Closure and Postclosure Requirements, dated July 2006.

III.15.B AMENDMENTS TO THE APPROVED PERMIT

Portions of Permit Attachment 4 (DOE/RL-94-02) that are not made enforceable by inclusion in the applicability matrix for that document are not made enforceable by reference in this document.

PART I - UNIT SPECIFIC CONDITIONS FOR CORRECTIVE ACTION

CHAPTER 1

100-NR-1 Operable Unit

The 100-NR-1 Operable Unit (OU) includes solid waste management units and one-time spill sites which are undergoing corrective action. As prescribed by Permit Conditions II.Y of this Permit, this Chapter sets forth the corrective action requirements for the 100-NR-1 OU.

IV.1.A COMPLIANCE WITH APPROVED CORRECTIVE MEASURES STUDY

The Permittees shall comply with all requirements set forth in Permit Attachment 47. Enforceable portions are listed below; all subsections, figures, and tables included in these portions are also enforceable, unless stated otherwise.

PERMIT ATTACHMENT 47:

Chapter 7.0	Comparative Analysis of Remedial Alternatives
Chapter 9.0, §9.0	Recommended Corrective Measures
Chapter 9.0, §9.1	RCRA Corrective Action Performance Standards
Chapter 9.0, §9.2	Corrective Measures for the 100-NR-1 Operable Unit Source Sites
Chapter 9.0, §9.2.1	Recommended Actions and Justifications
Chapter 9.0, §9.2.2	Cleanup Standards for the 100-NR-1 Operable Unit
Chapter 9.0, §9.2.3	Cost
Chapter 9.0, §9.2.4	Schedule
Chapter 9.0, §9.2.5	Training
Appendix A	Applicable or Relevant and Appropriate Requirements
Appendix G	Cost Estimates

IV.1.B. COMPLIANCE WITH APPROVED ENGINEERING EVALUATION/COST ANALYSIS

The Permittees shall comply with all requirements set forth in Permit Attachment 48. Enforceable portions are listed below; all subsections, figures, and tables included in these potions are also enforceable, unless stated otherwise:

PERMIT ATTACHMENT 48:

Chapter 2.0, §2.2.1.5	Remedial Unit Five – Description of the SWMU's
Chapter 2.0, Table 2.1	Suspected Contaminants in 100-N Area Ancillary Facilities
Chapter 5.0, §5.2	Compliance with ARARS
Chapter 5.0, §5.10	Other Considerations
Chapter 5.0, Table 5.1	Summary of Estimated Costs for Alternatives Two, Three, and Four
Chapter 6.0	Recommended Alternative
Appendix A	Integration Plan for Decontamination and Demolition and Remedial Action in the 100-N Area

CHAPTER 2

100-NR-2 Operable Unit

The 100-NR-2 Operable Unit (OU) is the ground water below 100-NR-1 OU, which has been contaminated as a result of past intentional disposal operations and unintentional spills of hazardous substances. As prescribed by Permit Conditions II.Y of this Permit, this Chapter sets forth the corrective action requirements for the 100-NR-2 OU.

IV.2.A COMPLIANCE WITH APPROVED CORRECTIVE MEASURES STUDY

The Permittees shall comply with all requirements set forth in Permit Attachment 47. Enforceable portions are listed below; all subsections, figures, and tables included in these portions are also enforceable, unless stated otherwise:

PERMIT ATTACHMENT 47:

Chapter 7.0	Comparative Analysis of Remedial Alternatives
Chapter 9.0, §9.0	Recommended Corrective Measures
Chapter 9.0, §9.1	RCRA Correction Action Performance Standards
Chapter 9.0, §9.3	Corrective Measure for the 100-NR-2 Operable Unit
Chapter 9.0, §9.3.1	Recommended Action and Justification
Chapter 9.0, §9.3.2	Cleanup Standards for the 100-NR-2 Operable Unit
Chapter 9.0, §9.3.3	Cost
Chapter 9.0, §9.3.4	Schedule
Chapter 9.0, §9.3.5	Training
Appendix A	Applicable or Relevant and Appropriate Requirements
Appendix G	Cost Estimates

IV.2.B. COMPLIANCE WITH APPROVED ENGINEERING EVALUATION/COST ANALYSIS

The Permittees shall comply with all requirements set forth in Permit Attachment 48. Enforceable portions are listed below; all subsections, figures, and tables included in these potions are also enforceable, unless stated otherwise:

PERMIT ATTACHMENT 48:

Chapter 2.0, §2.2.1.5	Remedial Unit Five – Description of the SWMU's
Chapter 2.0, Table 2.1	Suspected Contaminants in 100-N Area Ancillary Facilities
Chapter 5.0, §5.2	Compliance with ARARS
Chapter 5.0, §5.10	Other Considerations
Chapter 5.0, Table 5.1	Summary of Estimated Costs for Alternatives Two, Three, and Four
Chapter 6.0	Recommended Alternative
Appendix A	Integration Plan for Decontamination and Demolition and Remedial Action in the 100-N Area

PART V - UNIT-SPECIFIC CONDITIONS FOR UNITS UNDERGOING CLOSURE

CHAPTER 1

183-H Solar Evaporation Basins (Superseded by Part VI, Chapter 2)

The 183-H Solar Evaporation Basins (Basins) TSD unit was operated as an evaporation treatment unit for dangerous wastes. The 183-H Solar Evaporation Basins Closure Plan has been completed and clean closure could not be achieved. The Modified Closure Plan presented in Part VI, Chapter 2 supersedes this Chapter.

CHAPTER 2

300 Area Solvent Evaporator (Clean Closed, July 31, 1995)

The 300 Area Solvent Evaporator (300 ASE) unit was operated as an evaporation treatment unit for dangerous wastes. This Chapter sets forth the closure requirements for this TSD unit.

This unit was Clean Closed on July 31, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 16, which was retired during Revision 6 of this Permit.

CHAPTER 3

2727-S Nonradioactive Dangerous Waste Storage Facility (Clean Closed, July 31, 1995)

The 2727-S NRDWSF unit was operated as a storage unit for dangerous wastes. This Chapter sets forth the closure requirements for this TSD unit.

This unit was Clean Closed on July 31, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 17, which was retired during Revision 6 of this Permit.

CHAPTER 4

Simulated High Level Waste Slurry Treatment and Storage Unit (Clean Closed, October 23, 1995)

The Simulated High Level Waste Slurry (SHLWS) unit was operated as a TSD unit for simulated slurry as a test operation in connection with the grout project. This Chapter sets forth the closure requirements for this TSD unit.

This unit was Clean Closed on October 23, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 19, which was retired during Revision 6 of this Permit.

CHAPTER 5

218-E-8 Borrow Pit Demolition Site
(Clean Closed, November 28, 1995)

The 218-E-8 Borrow Pit Demolition Site (218 BPDS) unit was operated as an open burning/open detonation unit for dangerous wastes. This Chapter sets forth the closure requirements for this TSD unit.

This unit was Clean Closed on November 28, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 20, which was retired during Revision 6 of this Permit.

CHAPTER 6

200 West Area Ash Pit Demolition Site
(Clean Closed, November 28, 1995)

The 200 West Area Ash Pit Demolition Site (200 APDS) unit was operated as an open burning/open detonation unit for dangerous wastes. This Chapter sets forth the closure requirements for this TSD unit.

This unit was Clean Closed on November 28, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 21, which was retired during Revision 6 of this Permit.

CHAPTER 7

2101-M Pond
(Clean Closed, November 28, 1995)

The 2101-M Pond unit was operated as a disposal unit for potentially dangerous waste. This chapter sets forth closure requirements for this TSD unit.

This unit was Clean Closed on November 28, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 22, which was retired during Revision 6 of this Permit.

CHAPTER 8

216-B-3 Expansion Ponds
(Clean Closed, July 31, 1995)

The 216-B-3 Expansion Ponds unit was operated as a treatment and disposal unit for dangerous waste. This chapter sets forth the closure requirements for this TSD unit.

This unit was Clean Closed on July 31, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 23, which was retired during Revision 6 of this Permit.

CHAPTER 9

Hanford Patrol Academy Demolition Site
(Clean Closed, November 28, 1995)

The Hanford Patrol Academy Demolition Site (HPADS) unit was operated as an open burning/open detonation unit for dangerous waste. This Chapter sets forth the closure requirements for this TSD unit.

This unit was Clean Closed on November 28, 1995, in accordance with the approved Closure Plan contained in Permit Attachment 24, which was retired during Revision 6 of this Permit.

CHAPTER 10

105-DR Large Sodium Fire Facility
(Partial Closure Plan Completed, October 1, 1996)

The Large Sodium Fire Facility (LSFF) was a research laboratory used to conduct experiments for studying the behavior of alkali metals. This facility was also used for the treatment of alkali metal dangerous wastes.

This unit completed the closure plan on October 1, 1996, in accordance with the approved Closure Plan contained in Permit Attachment 25, which was retired during Revision 6 of this Permit.

CHAPTER 11

304 Concretion Facility
(Clean Closed, January 21, 1996)

The 304 Concretion Facility (304 Facility) was used for the treatment of dangerous wastes produced during the fuel fabrication process. These wastes consist of beryllium/Zircalloy-2 chips and Zircalloy-2 chips and fines.

This Unit was Clean Closed on January 21, 1996, in accordance with the approved Closure Plan contained in Permit Attachment 26, which was retired during Revision 6 of this Permit.

CHAPTER 12

4843 Alkali Metal Storage Facility Closure Plan
(Clean Closed, April 14, 1997)

The 4843 Alkali Metal Storage Facility (4843 AMSF) is an inactive storage facility which is currently undergoing permanent closure activities. This TSD unit was operated as a storage unit for dangerous waste and alkali metals.

This unit was clean closed on April 14, 1997, in accordance with the approved closure plan contained in Permit Attachment 29, which was retired during Revision 6 of this Permit.

CHAPTER 13

3718-F Alkali Metal Treatment and Storage Facility Closure Plan
(Clean Closed, August 4, 1998)

The 3718-F Alkali Metal Treatment and Storage Facility was operated to treat and store alkali metal waste from the Fast Flux Test Facility, and from various laboratories that used alkali metals for experiments. Contaminated equipment was treated using water, methanol, isopropyl alcohol, or 2-butoxy ethanol. Bulk waste was treated by burning to eliminate the ignitability and reactive characteristics. After the burn treatment, the waste was neutralized with acid to a pH between 2 and 12.5.

This unit was Clean Closed on August 4, 1998, in accordance with the approved Closure Plan contained in Permit Attachment 30, which was retired during Revision 6 of this Permit.

CHAPTER 14

303-K Storage Facility (Clean Closed July 22, 2002)

The 303-K Storage Facility (303-K) was used for storage of mixed waste produced during the fuel fabrication process. These wastes consisted of beryllium/zircalloy-2 chips which were concreted at the 304 Concretion Facility, and other process wastes.

This unit was Clean Closed on July 22, 2002, in accordance with the approved Closure Plan contained in Permit Attachment 32, which was retired during Revision 6 of this Permit.

CHAPTER 15

100 D Ponds
(Clean Closed, August 9, 1999)

The 100 D Ponds was operated as a liquid effluent disposal site for dangerous wastes. This unit was Clean Closed on August 9, 1999, in accordance with the approved Clean Closure Plan contained in Permit Attachment 40, which was retired during Revision 6 of this Permit.

CHAPTER 16

1325-N Liquid Waste Disposal Facility

The 1325-N Liquid Waste Disposal Facility (LWDF) is an inactive TSD unit that is currently undergoing modified closure activities. This TSD unit was operated as a liquid waste disposal facility for dangerous wastes. This Chapter sets forth the modified closure requirements for the 1325-N LWDF.

V.16.A COMPLIANCE WITH APPROVED MODIFIED CLOSURE PLAN

The Permittees shall comply with all requirements set forth in the Hanford Facility Dangerous Waste Permit, as specified in Permit Attachment 3, Permit Applicability Matrix and the unit-specific conditions identified below for the 1325-N LWDF, including all modifications.

In the event that the Part V – Unit-Specific Conditions for 1325-N LWDF conflict with the Part I - Standard Conditions and/or Part II – General Facility Conditions of the Permit the unit-specific conditions for 1325-N LWDF prevail.

PERMIT ATTACHMENT 41:

Chapter 1.0	Part A Dangerous Waste Permit, from Class 1 modification dated September 30, 2005 1325-N Liquid Waste Disposal Facility Revision 8
Chapter 2.0	Unit Description, from Class 1 modification dated August 2004
Chapter 3.0	Groundwater Monitoring, from Class 1 modification dated August 2004
Chapter 4.0	Closure Activities, from Class 1 modification dated March 31, 2005
Chapter 5.0	Postclosure Plan, from Class 1 modification dated August 2004

CHAPTER 17

1301-N Liquid Waste Disposal Facility

The 1301-N Liquid Waste Disposal Facility is an inactive TSD unit that is currently undergoing modified closure activities. This TSD unit was operated as a liquid waste disposal facility for dangerous waste. This Chapter sets forth the modified closure requirements for this TSD unit.

V.17.A COMPLIANCE WITH APPROVED MODIFIED CLOSURE PLAN

The Permittees shall comply with all requirements set forth in the Hanford Facility Dangerous Waste Permit, as specified in Permit Attachment 3, Permit Applicability Matrix and the unit-specific conditions identified below for the 1301-N LWDF,, including all modifications.

In the event that the Part V – Unit-Specific Conditions for 1301-N LWDF conflict with the Part I - Standard Conditions and/or Part II – General Facility Conditions of the Permit the unit-specific conditions for 1301-N LWDF prevail.

PERMIT ATTACHMENT 41:

Chapter 1.0	Part A Dangerous Waste Permit, from Class 1 modification dated September 30, 2005 1301-N Liquid Waste Disposal Facility, Revision 8
Chapter 2.0	Unit Description, from Class 1 modification dated August 2004
Chapter 3.0	Groundwater Monitoring, from Class 1 modification dated August 2004
Chapter 4.0	Closure Activities, from Class 1 modification dated March 31, 2005
Chapter 5.0	Postclosure Plan, from Class 1 modification dated August 2004

CHAPTER 18

1324-N Surface Impoundment

The 1324-N Surface Impoundment was a TSD unit that operated as a percolation unit for dangerous wastes. This unit completed their Closure Plan.

V.18.A. COMPLIANCE WITH APPROVED MODIFIED CLOSURE PLAN

The Permittees shall comply with all requirements set forth in Hanford Facility Dangerous Waste Permit, as specified in Permit Attachment 3, Permit Applicability Matrix and the unit-specific conditions identified below for the 1324-N Surface Impoundment , including all modifications.

In the event that the Part V – Unit-Specific Conditions for 1324-N Surface Impoundment conflict with the Part I – Standard Conditions and/or Part II – General Facility Conditions of the Permit the unit-specific conditions for 1324-N Surface Impoundment prevail.

PERMIT ATTACHMENT 42:

Chapter 1.0	Part A, Dangerous Waste Permit, from Class 1 modification dated September 30, 2005 1324-N Surface Impoundment, Revision 4
Chapter 2.0	Unit Description, from Class 1 modification dated August 2004
Chapter 3.0	Ground Water Monitoring, from Class 1 modification dated August 2004
Chapter 4.0	Closure, from Class 1 modification dated August 2004
Chapter 5.0	Post-Closure Plan, from Class 1 modification dated August 2004

CHAPTER 19

1324-NA Percolation Pond

The 1324-NA Percolation Pond is an inactive TSD unit that is currently undergoing modified closure activities. This TSD unit was operated as a surface impoundment unit for dangerous wastes. This Chapter sets forth the modified closure requirements for this TSD unit.

V.19.A. COMPLIANCE WITH APPROVED MODIFIED CLOSURE PLAN

The Permittees shall comply with all requirements set forth in Hanford Facility Dangerous Waste Permit, as specified in Permit Attachment 3, Permit Applicability Matrix and the unit-specific conditions identified below for the 1324-NA Percolation Pond, including all modifications.

In the event that the Part V – Unit-Specific Conditions for 1324-N Surface Impoundment conflict with the Part I – Standard Conditions and/or Part II – General Facility Conditions of the Permit the unit-specific conditions for 1324-NA Percolation Pond prevail.

PERMIT ATTACHMENT 42:

Chapter 1.0	Part A, Dangerous Waste Permit, from Class 1 modification dated September 30, 2005 1324-NA Percolation Pond, Revision 4
Chapter 2.0	Unit Description, from Class 1 modification dated August 2004
Chapter 3.0	Ground Water Monitoring, from Class 1 modification dated August 2004
Chapter 4.0	Closure, from Class 1 modification dated August 2004
Chapter 5.0	Post-Closure Plan, from Class 1 modification dated August 2004

CHAPTER 20

300 Area Waste Acid Treatment System
(Partial Closure Plan Completed, December 3, 2001)

The 300 Area Waste Acid Treatment System (300 WATS) was a tank system that was used to treat and store nonrecoverable uranium-bearing waste acid from reactor fuel fabrication operations. Waste acid neutralization occurred in portions of what now is the 300 Area WATS before operation of the system as a *Resource Conservation and Recovery Act* (RCRA) *of 1976* unit. The Closure Plan detailed closure of 300 Area WATS components, areas, and contamination resulting from RCRA operations. This unit consisted of portions of four (4) buildings and two (2) tank farms: 334-A Building, 313 Building, 303-F Building, 333 Building, 334 (tank 4), and 311 Tank Farms (tanks 40 and 50).

Closure activities were completed in September 1999, in accordance with the approved Closure Plan contained in Permit Attachment 46 that was retired during Revision 6 of this Permit. Clean closure was given for structures above the ground using the visually verifiable 'clean debris surface' rule and table in the *Ecology Guidance for Clean Closure of Dangerous Waste Facilities Publication #94-111* (August, 1994). The disposition of unclosed 300 Area WATS soils will be performed in conjunction with the 300-FF-2 CERCLA OU remedial action to complete WATS RCRA closure.

V.20.A COMPLIANCE

The Permittees shall comply with all requirements set forth in the Hanford Facility Dangerous Waste Permit, as specified in Permit Attachment 3, Permit Applicability Matrix and the unit-specific conditions identified below for the 300 Area WATS, including all approved modifications.

In the event that these Part V – Unit-Specific Conditions conflict with the Part I – Standard Conditions and/or Part II – General Facility Conditions of the Permit the unit-specific conditions for 300 Area WATS prevail.

300 AREA WATS:

Chapter 1.0 Part A, Dangerous Waste Permit, Revision, 7, dated July 2005

V.20.B. UNIT-SPECIFIC CONDITIONS FOR 300 AREA WATS:

V.20.B.1 Soil Contamination Areas 1 and 2, identified in the Part A, shall be inspected annually to ensure that the contamination at these locations remains immobilized until final disposition. Soil over the concrete block covers of 300 Area WATS and U-Bearing Piping Trench that covers Soil Contamination Area 1 will be inspected annually for disturbance indicating a potential for contamination at this area to become mobilized. The concrete slab surface over Soil contamination Area 2, located inside the 313 Building, will be inspected annually for cracks or major degradation and the presence of water that could mobilize soil contamination at this location. If unsatisfactory conditions are identified during annual inspections, Ecology will be notified for discussion of an appropriate response. This condition constitutes the TSD unit's inspection schedule.

V.20.B.2 A contingency plan, personnel training plan, or a waste analysis plan will not be required for the 300 Area WATS following partial closure, as this scope of work is included in the 300-FF-2 remedial action.

CLOSURE UNIT 6

Plutonium Finishing Plant Treatment Unit, Glovebox HA-20 MB

(Closed February 8, 2005)

The PFP Treatment Unit (HA-20MB) was a treatment unit. The HA-20MB glovebox operated as a sealed box with built-in gloves that allowed individuals to manipulate items inside and a window to allow viewing the interior. It was part of the PFP complex located within the 234-5Z Building in the 200 Area of the Hanford Site. This permit sets forth the closure requirements for this TSD unit. This unit has completed their Closure Plan.

V.21.A. COMPLIANCE WITH APPROVED CLOSURE PLAN

The Permittees complied with all requirements set forth in Hanford Facility Dangerous Waste Permit, as specified in Permit Attachment 3, Permit Applicability Matrix and the unit-specific conditions identified below for the Plutonium Finishing Plant Treatment Unit, Glovebox HA-20 MB.

PERMIT ATTACHMENT 54

Part A Form, Revision 1, dated April 10, 2000

Chapter 1.0 Introduction

Chapter 2.0 System and Process Description

Chapter 3.0 Closure Plan Closure

Chapter 4.0 Schedule for Closure

Chapter 5.0 References

CLOSURE UNIT 7

241-Z Treatment and Storage Tanks

The 241-Z Treatment and Storage Tanks was a storage tank treatment system. This system stored and treated liquid mixed waste generated from PFP process activities prior to the waste being transferred to Double-Shell Tanks for storage until final disposition. This permit sets forth the closure requirements for this TSD unit.

V.22.A. COMPLIANCE WITH APPROVED CLOSURE PLAN

The Permittees shall comply with all requirements set forth in Hanford Facility Dangerous Waste Permit, as specified in Permit Attachment 3, Permit Applicability Matrix and the unit-specific conditions identified below for the 241-Z Treatment and Storage Tanks.

In the event that the Part V -- Unit-Specific Conditions for 241-Z Treatment and Storage Tanks conflict with the Part I – Standard Conditions and/or Part II – General Facility Conditions of the Permit the unit-specific conditions for 241-Z Treatment and Storage Tanks prevail.

PERMIT ATTACHMENT 55

Part A Form, Revision 6, dated June 5, 2000

Chapter 1.0 Introduction

Chapter 2.0 System Description

Chapter 3.0 Process Information

Chapter 4.0 Waste Characteristics

Chapter 5.0 Groundwater Monitoring

Chapter 6.0 Closure Strategy and Performance Standards

Chapter 7.0 General-Closure Activities

Chapter 8.0 Post-Closure

Chapter 9.0 References

PART VI - UNIT-SPECIFIC CONDITIONS FOR UNITS IN POST-CLOSURE

CHAPTER 1

300 Area Process Trenches

The 300 Area Process Trenches were operated to receive effluent discharges of dangerous mixed waste from fuel fabrication laboratories in the 300 Area. This chapter sets forth the modified closure requirements.

VI.1.A. COMPLIANCE WITH APPROVED MODIFIED CLOSURE PLAN

The Permittees shall comply with all requirements set forth in Permit Attachment 31, including Permit Conditions specified in VI.1.B. The Permittees shall also comply with all the requirements in the 300-FF-1 and 300-FF-5 Record of Decision. All sections, figures, and tables included in these portions are enforceable:

PERMIT ATTACHMENT 31:

Chapter 1.0	Part A Dangerous Waste Permit, Revision 6, from Class 1 modification dated May 2005
Chapter 2.0	Introduction, from Class 1 modification dated June 30, 2002
Chapter 3.0	300 Area Process Trenches Groundwater Monitoring Plan, RCRA Final Status Compliance Monitoring Plan (i.e., WHC-SD-EN-AP-185), dated June 30, 2002
Chapter 4.0	Closure Contact, from Class 1 Modification dated February 2004
Chapter 5.0	Certification of Postclosure, from Class 1 Modification dated February 2004
Chapter 8.0	Postclosure, from Class 1 modification dated June 30, 2002

VI.1.B. AMENDMENTS TO THE APPROVED MODIFIED CLOSURE PLAN

VI.1.B.1. Pursuant to Permit Condition II.K.7, the 300 Area Process Trenches (APT) closure shall be a Modified Closure in coordination with the Record of Decision (ROD) for 300-FF-1 and 300-FF-5. Sections of CERCLA documents (examples may include, but are not limited to, Remedial Design/Remedial Action CERCLA work plan, the Operation and Monitoring Work Plan, etc.), which satisfy requirements and Conditions of this Modified Closure Plan, will be reviewed and approved by Ecology.

VI.1.B.2. As stipulated through Permit Attachment 31, Chapter 3.0 the RCRA Final Status Compliance Monitoring Plan (i.e., WHC-SD-EN-AP-185) Appendix IX, sampling shall not be required unless post-closure monitoring results indicate a need to do so.

CHAPTER 2

183-H Solar Evaporation Basins

The 183-H Solar Evaporation Basins comprise an inactive TSD unit that is undergoing post closure activities. This TSD unit was operated as an evaporation treatment unit for dangerous wastes.

VI.2.A. COMPLIANCE WITH APPROVED MODIFIED CLOSURE PLAN

The Permittees shall comply with all requirements set forth in Permit Attachment 37, including Permit Conditions specified in VI.2.B. All sections, figures, and tables included in these portions are enforceable:

PERMIT ATTACHMENT 37:

Chapter 1.0	Part A Dangerous Waste Permit, Revision 6, from Class 1 modification dated May 2005
Chapter 2.0	Modified Postclosure Institutional Controls and Periodic Assessments, from Class 1 modification dated June 30, 2002
Chapter 3.0	Ground Water Monitoring During Postclosure, from Class 1 modification dated June 30, 2002
Chapter 4.0	Corrective Action Plan, from Class 1 modification dated June 30, 2002
Chapter 5.0	Personnel Training During Postclosure, from Class 1 modification dated June 30, 2002
Chapter 6.0	Security, from Class 1 modification dated February 2004
Chapter 7.0	Closure Contact, from Class 1 modification dated February 2004
Chapter 8.0	Certification of Postclosure, from Class 1 modification dated June 30, 2002

VI.2.B. AMENDMENTS TO THE APPROVED POST-CLOSURE PLAN

VI.2.B.1. The Permittee will review the modified closure option in five (5) years (February 28, 2008). The purpose of the review will be to determine if this TSD unit can be clean closed.

VI.2.B.2. Well 199-H4-7, is removed from the ground water monitoring network identified in Chapter 3.0 and replaced with well 199-H4-8.

PART III, OPERATING UNITS

OPERATING UNIT 15 UNIT-SPECIFIC CONDITIONS

331-C Storage Unit

The 331-C Storage Unit is a dangerous waste storage unit located in the 300 Area.

This document sets forth the operating conditions for the 331-C Storage Unit.

III.1.A COMPLIANCE WITH PERMIT CONDITIONS

The Permittees shall comply with all requirements set forth in the Hanford Facility Dangerous Waste Permit including all approved modifications. All chapters, subsections, figures, tables, and appendices included in the following unit-specific Permit Conditions are enforceable in their entirety.

In the event that the Part III-Unit-Specific Conditions for Operating Unit 15, 331-C Storage Unit conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit-specific conditions for Operating Unit 15, 331-C Storage Unit prevail.

OPERATING UNIT 15:

Chapter 1.0 Part A, Dangerous Waste Permit, Revision, dated December 15, 2006.

Chapter 2.0 Unit Description, dated July 2006

Chapter 3.0 Waste Analysis Plan, dated July 2006

Chapter 4.0 Process Information, dated July 2006

Chapter 5.0 Groundwater Monitoring (not applicable)

Chapter 6.0 Procedures to Prevent Hazards (in addition to the General Information, Permit Attachment 3)

Chapter 7.0 Contingency Plan, dated July 2006.

Chapter 11.0 Closure and Postclosure Requirements, dated July 2006.

III.1.B UNIT-SPECIFIC CONDITIONS 331-C STORAGE UNIT

III.1.B.1 Portions of Permit Attachment 4 (DOE/RL-94-02) that are not made enforceable by inclusion in the applicability matrix for that document are not made enforceable by reference in this document.

Chapter 1.0 **Part A**

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dangerous Waste Permit Application Part A Form

Date Received	Reviewed by: Sylvia Wallace	Date: 06/15/2006
Month Day Year	Approved by: [signature]	Date: 06/26/2006
12/15/2005	Please refer to instructions for completing this form	

I. This form is submitted to: (place an "X" in the appropriate box)

☒	Request modification to a final status permit (commonly called a "Part B" permit)
☐	Request a change under interim status
☐	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
☐	Establish interim status because of the wastes newly regulated on: (Date)
	List waste codes:

II. EPA/State ID Number

WA7890008967

III. Name of Facility

US Department of Energy – Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

825 Jadwin

City or Town	State	ZIP Code
Richland	WA	99352

County Code (if known)	County Name
005	Benton

B. Land Type	C. Geographic Location Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	D. Facility Existence Date Month Day Year
F	SEE TOPO	MAP	03 22 1943

V. Facility Mailing Address

Street or P.O. Box

P.O. Box 550

City or Town	State	ZIP Code
Richland	WA	99352

1.0 PART A DANGEROUS WASTE PERMIT

The following is a chronology of the regulatory history of the 331-C Storage Unit.

- December 15, 2005, submitted original Part A Form to the Washington State Department of Ecology (Ecology) with Part B information and temporary authorization request.
- A temporary authorization was granted by Ecology on March 16, 2006.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dangerous Waste Permit Application Part A Form

Date Received	Reviewed by	Date
Month Day Year	Approved by	Date
12/15/2005	Please refer to instructions for completing this form	

I. This form is submitted to: (place an "X" in the appropriate box)

☒	Request modification to a final status permit (commonly called a "Part B" permit)
☐	Request a change under interim status
☐	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
☐	Establish interim status because of the wastes newly regulated on: (Date)
	List waste codes:

II. EPA/State ID Number

W	A	7	8	9	0	0	0	8	9	6	7

III. Name of Facility

US Department of Energy – Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

825 Jadwin

City or Town	State	ZIP Code
Richland	WA	99352

County Code (if known)	County Name
005	Benton

B. Land Type	C. Geographic Location Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	D. Facility Existence Date Month Day Year
F	SEE TOPO	MAP	03 22 1943

V. Facility Mailing Address

Street or P.O. Box

P.O. Box 550

City or Town	State	ZIP Code
Richland	WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)		
Name (last)	**(first)**	
Klein	Keith	
Job Title	**Phone Number (area code and number)**	
Manager	(509) 376-7395*	
Contact Address		
Street or P.O. Box		
P.O. Box 550		
City or Town	**State**	**ZIP Code**
Richland	WA	99352

VII. Facility Operator Information		
A. Name	**Phone Number (area code and number)**	
Department of Energy* Owner/Operator Pacific Northwest National Laboratory** Co-Operator for 331-C Storage Unit	(509) 376-7395* (509) 376-1187**	
Street or P.O. Box		
P.O. Box 550* P.O. Box 999**		
City or Town	**State**	**ZIP Code**
Richland	WA	99352
B. Operator Type F		
C. Does the name in VII.A reflect a proposed change in operator? ☐ Yes ☒ No **If yes, provide the scheduled date for the change:**	**Month**	**Day** **Year**
D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C. ☐ Yes ☒ No		

VIII. Facility Owner Information		
A. Name	**Phone Number (area code and number)**	
Keith A. Klein, Operator/Facility-Property Owner	(509) 376-7395*	
Street or P.O. Box		
P.O. Box 550		
City or Town	**State**	**ZIP Code**
Richland	WA	99352
B. Operator Type F		
C. Does the name in VII.A reflect a proposed change in operator? ☐ Yes ☒ No **If yes, provide the scheduled date for the change:**	**Month**	**Day** **Year**

IX. NAICS Codes (5/6 digit codes)													
A. First							**B. Second**						
5	4	1	7	1	0	Research & Development in the Physical, Engineering, & Life Sciences	9	9	9	9	9	9	Unclassified Establishments
C. Third							**D. Fourth**						

X. Other Environmental Permits (see instructions)

A. Permit Type	B. Permit Number	C. Description
E	AIR02-1202	WAC 246-247, Non radioactive Air, 40 CFR 61, Subpart H, NESHAPS
E	DE98NWP-003	WAC 173-400, General Regulations for Air Pollution Sources WAC 173-460, Controls for New Sources of Toxic Air Pollutants

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

Pacific Northwest National Laboratory (PNNL) is one of nine Department of Energy (DOE) multiprogram national laboratories and is managed by DOE's Office of Science (SC). PNNL program areas include fundamental science, environmental technology, computational and information sciences, national security, and energy science and technology along with the programs of the Environmental Molecular Sciences Laboratory.

The 331-C Storage Unit is a dangerous waste storage unit owned and operated by DOE's Richland Operations Office (RL) and co-operated by PNNL. The unit is used for the collection, consolidation, packaging, storage, and, preparation for transport and disposal of dangerous waste. It is an integral part of PNNL's waste management system.

Dangerous waste is managed in segregated cells, cabinets, and other areas as described in the Part B permit application. The waste stored at the 331-C Storage Unit consists of listed waste, waste from nonspecific sources, characteristic waste, and state-only waste derived from research activities and facility operations.

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons and 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification.*

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes							
Line Number		A. Process Codes (enter code)			B. Process Design Capacity 1. Amount	B. Process Design Capacity 2. Unit of Measure (enter code)	C. Process Total Number of Units	Line Number		A. Process Codes (enter code)			B Process Design Capacity 1. Amount	B Process Design Capacity 2. Unit of Measure (enter code)	C. Process Total Number of Units	D. Process Description
X	1	S	0	2	1,600	G	002	X	1	T	0	4	700	C	001	In situ vitrification
X	2	T	0	3	20	E	001									
X	3	T	0	4	700	C	001									
	1	S	0	1	20,000	G	001		1							
	2								2							
	3								3							
	4								4							
	5								5							
	6								6							
	7								7							
	8								8							
	9								9							
1	0							1	0							
1	1							1	1							
1	2							1	2							
1	3							1	3							
1	4							1	4							
1	5							1	5							
1	6							1	6							
1	7							1	7							
1	8							1	8							
1	9							1	9							
2	0							2	0							
2	1							2	1							
2	2							2	2							
2	3							2	3							
2	4							2	4							
2	5							2	5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)	D. Processes (2) Process Description [If a code is not entered in D (1)]
X 1	D 0 0 2	400	P	S 0 1 T 0 1	
X 2	D 0 0 1	100	P	S 0 2 T 0 1	
X 3	D 0 0 2				Included with above
1	D 0 0 1	10,000	K	S 0 1	Includes Debris
2	D 0 0 2	10,000	K	S 0 1	Includes Debris
3	D 0 0 3	1000	K	S 0 1	Includes Debris
4	D 0 0 4	1000	K	S 0 1	Includes Debris
5	D 0 0 5	1000	K	S 0 1	Includes Debris
6	D 0 0 6	1000	K	S 0 1	Includes Debris
7	D 0 0 7	5,000	K	S 0 1	Includes Debris
8	D 0 0 8	5,000	K	S 0 1	Includes Debris
9	D 0 0 9	1000	K	S 0 1	Includes Debris
10	D 0 1 0	1000	K	S 0 1	Includes Debris
11	D 0 1 1	1000	K	S 0 1	Includes Debris
12	D 0 1 2	220	K	S 0 1	Includes Debris
13	D 0 1 3	220	K	S 0 1	Includes Debris
14	D 0 1 4	220	K	S 0 1	Includes Debris
15	D 0 1 5	220	K	S 0 1	Includes Debris
16	D 0 1 6	220	K	S 0 1	Includes Debris
17	D 0 1 7	220	K	S 0 1	Includes Debris
18	D 0 1 8	2,000	K	S 0 1	Includes Debris
19	D 0 1 9	2,000	K	S 0 1	Includes Debris
20	D 0 2 0	220	K	S 0 1	Includes Debris
21	D 0 2 1	220	K	S 0 1	Includes Debris
22	D 0 2 2	2,000	K	S 0 1	Includes Debris
23	D 0 2 3	2,000	K	S 0 1	Includes Debris
24	D 0 2 4	2,000	K	S 0 1	Includes Debris
25	D 0 2 5	2,000	K	S 0 1	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process (1) Process Codes (enter)	D. Process (2) Process Description [If a code is not entered in D (1)]
26	D 0 2 6	2,000	K	S 0 1	Includes Debris
27	D 0 2 7	220	K	S 0 1	Includes Debris
28	D 0 2 8	220	K	S 0 1	Includes Debris
29	D 0 2 9	220	K	S 0 1	Includes Debris
30	D 0 3 0	220	K	S 0 1	Includes Debris
31	D 0 3 1	220	K	S 0 1	Includes Debris
32	D 0 3 2	220	K	S 0 1	Includes Debris
33	D 0 3 3	220	K	S 0 1	Includes Debris
34	D 0 3 4	220	K	S 0 1	Includes Debris
35	D 0 3 5	2,000	K	S 0 1	Includes Debris
36	D 0 3 6	220	K	S 0 1	Includes Debris
37	D 0 3 7	2,000	K	S 0 1	Includes Debris
38	D 0 3 8	2,000	K	S 0 1	Includes Debris
39	D 0 3 9	2,000	K	S 0 1	Includes Debris
40	D 0 4 0	2,000	K	S 0 1	Includes Debris
41	D 0 4 1	220	K	S 0 1	Includes Debris
42	D 0 4 2	220	K	S 0 1	Includes Debris
43	D 0 4 3	2,000	K	S 0 1	Includes Debris
44	F 0 0 1	2,000	K	S 0 1	Includes Debris
45	F 0 0 2	2,000	K	S 0 1	Includes Debris
46	F 0 0 3	5,000	K	S 0 1	Includes Debris
47	F 0 0 4	1,000	K	S 0 1	Includes Debris
48	F 0 0 5	2,000	K	S 0 1	Includes Debris
49	F 0 2 7	200	K	S 0 1	Includes Debris
50	P 0 0 1	200	K	S 0 1	Includes Debris
51	P 0 0 2	200	K	S 0 1	Includes Debris
52	P 0 0 3	200	K	S 0 1	Includes Debris
53	P 0 0 4	200	K	S 0 1	Includes Debris
54	P 0 0 5	200	K	S 0 1	Includes Debris
55	P 0 0 6	200	K	S 0 1	Includes Debris
56	P 0 0 7	200	K	S 0 1	Includes Debris
57	P 0 0 8	200	K	S 0 1	Includes Debris
58	P 0 0 9	200	K	S 0 1	Includes Debris
59	P 0 1 0	200	K	S 0 1	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
60	P 0 1 1	200	K	S 0 1	Includes Debris
61	P 0 1 2	200	K	S 0 1	Includes Debris
62	P 0 1 3	200	K	S 0 1	Includes Debris
63	P 0 1 4	200	K	S 0 1	Includes Debris
64	P 0 1 5	200	K	S 0 1	Includes Debris
65	P 0 1 6	200	K	S 0 1	Includes Debris
66	P 0 1 7	200	K	S 0 1	Includes Debris
67	P 0 1 8	200	K	S 0 1	Includes Debris
68	P 0 2 0	200	K	S 0 1	Includes Debris
69	P 0 2 1	200	K	S 0 1	Includes Debris
70	P 0 2 2	200	K	S 0 1	Includes Debris
71	P 0 2 3	200	K	S 0 1	Includes Debris
72	P 0 2 4	200	K	S 0 1	Includes Debris
73	P 0 2 6	200	K	S 0 1	Includes Debris
74	P 0 2 7	200	K	S 0 1	Includes Debris
75	P 0 2 8	200	K	S 0 1	Includes Debris
76	P 0 2 9	200	K	S 0 1	Includes Debris
77	P 0 3 0	200	K	S 0 1	Includes Debris
78	P 0 3 1	200	K	S 0 1	Includes Debris
79	P 0 3 3	200	K	S 0 1	Includes Debris
80	P 0 3 4	200	K	S 0 1	Includes Debris
81	P 0 3 6	200	K	S 0 1	Includes Debris
82	P 0 3 7	200	K	S 0 1	Includes Debris
83	P 0 3 8	200	K	S 0 1	Includes Debris
84	P 0 3 9	200	K	S 0 1	Includes Debris
85	P 0 4 0	200	K	S 0 1	Includes Debris
86	P 0 4 1	200	K	S 0 1	Includes Debris
87	P 0 4 2	200	K	S 0 1	Includes Debris
88	P 0 4 3	200	K	S 0 1	Includes Debris
89	P 0 4 4	200	K	S 0 1	Includes Debris
90	P 0 4 5	200	K	S 0 1	Includes Debris
91	P 0 4 6	200	K	S 0 1	Includes Debris
92	P 0 4 7	200	K	S 0 1	Includes Debris
93	P 0 4 8	200	K	S 0 1	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
94	P049	200	K	S01	Includes Debris
95	P050	200	K	S01	Includes Debris
96	P051	200	K	S01	Includes Debris
97	P054	200	K	S01	Includes Debris
98	P056	200	K	S01	Includes Debris
99	P057	200	K	S01	Includes Debris
100	P058	200	K	S01	Includes Debris
101	P059	200	K	S01	Includes Debris
102	P060	200	K	S01	Includes Debris
103	P062	200	K	S01	Includes Debris
104	P063	200	K	S01	Includes Debris
105	P064	200	K	S01	Includes Debris
106	P065	200	K	S01	Includes Debris
107	P066	200	K	S01	Includes Debris
108	P067	200	K	S01	Includes Debris
109	P068	200	K	S01	Includes Debris
110	P069	200	K	S01	Includes Debris
111	P070	200	K	S01	Includes Debris
112	P071	200	K	S01	Includes Debris
113	P072	200	K	S01	Includes Debris
114	P073	200	K	S01	Includes Debris
115	P074	200	K	S01	Includes Debris
116	P075	200	K	S01	Includes Debris
117	P076	200	K	S01	Includes Debris
118	P077	200	K	S01	Includes Debris
119	P078	200	K	S01	Includes Debris
120	P081	200	K	S01	Includes Debris
121	P082	200	K	S01	Includes Debris
122	P084	200	K	S01	Includes Debris
123	P085	200	K	S01	Includes Debris
124	P087	200	K	S01	Includes Debris
125	P088	200	K	S01	Includes Debris
126	P089	200	K	S01	Includes Debris
127	P092	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
128	P093	200	K	S01	Includes Debris
129	P094	200	K	S01	Includes Debris
130	P095	200	K	S01	Includes Debris
131	P096	200	K	S01	Includes Debris
132	P097	200	K	S01	Includes Debris
133	P098	200	K	S01	Includes Debris
134	P099	200	K	S01	Includes Debris
135	P101	200	K	S01	Includes Debris
136	P102	200	K	S01	Includes Debris
137	P103	200	K	S01	Includes Debris
138	P104	200	K	S01	Includes Debris
139	P105	200	K	S01	Includes Debris
140	P106	200	K	S01	Includes Debris
141	P108	200	K	S01	Includes Debris
142	P109	200	K	S01	Includes Debris
143	P110	200	K	S01	Includes Debris
144	P111	200	K	S01	Includes Debris
145	P112	200	K	S01	Includes Debris
146	P113	200	K	S01	Includes Debris
147	P114	200	K	S01	Includes Debris
148	P115	200	K	S01	Includes Debris
149	P116	200	K	S01	Includes Debris
150	P118	200	K	S01	Includes Debris
151	P119	200	K	S01	Includes Debris
152	P120	200	K	S01	Includes Debris
153	P121	200	K	S01	Includes Debris
154	P122	200	K	S01	Includes Debris
155	P123	200	K	S01	Includes Debris
156	P127	200	K	S01	Includes Debris
157	P128	200	K	S01	Includes Debris
158	P185	200	K	S01	Includes Debris
159	P188	200	K	S01	Includes Debris
160	P189	200	K	S01	Includes Debris
161	P190	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process (1) Process Codes (enter)	D. Process (2) Process Description [If a code is not entered in D (1)]
162	P191	200	K	S01	Includes Debris
163	P192	200	K	S01	Includes Debris
164	P194	200	K	S01	Includes Debris
165	P196	200	K	S01	Includes Debris
166	P197	200	K	S01	Includes Debris
167	P198	200	K	S01	Includes Debris
168	P199	200	K	S01	Includes Debris
169	P201	200	K	S01	Includes Debris
170	P202	200	K	S01	Includes Debris
171	P203	200	K	S01	Includes Debris
172	P204	200	K	S01	Includes Debris
173	P205	200	K	S01	Includes Debris
174	U001	200	K	S01	Includes Debris
175	U002	200	K	S01	Includes Debris
176	U003	200	K	S01	Includes Debris
177	U004	200	K	S01	Includes Debris
178	U005	200	K	S01	Includes Debris
179	U006	200	K	S01	Includes Debris
180	U007	200	K	S01	Includes Debris
181	U008	200	K	S01	Includes Debris
182	U009	200	K	S01	Includes Debris
183	U010	200	K	S01	Includes Debris
184	U011	200	K	S01	Includes Debris
185	U012	200	K	S01	Includes Debris
186	U014	200	K	S01	Includes Debris
187	U015	200	K	S01	Includes Debris
188	U016	200	K	S01	Includes Debris
189	U017	200	K	S01	Includes Debris
190	U018	200	K	S01	Includes Debris
191	U019	200	K	S01	Includes Debris
192	U020	200	K	S01	Includes Debris
193	U021	200	K	S01	Includes Debris
194	U022	200	K	S01	Includes Debris
195	U023	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
196	U024	200	K	S01	Includes Debris
197	U025	200	K	S01	Includes Debris
198	U026	200	K	S01	Includes Debris
199	U027	200	K	S01	Includes Debris
200	U028	200	K	S01	Includes Debris
201	U029	200	K	S01	Includes Debris
202	U030	200	K	S01	Includes Debris
203	U031	200	K	S01	Includes Debris
204	U032	200	K	S01	Includes Debris
205	U033	200	K	S01	Includes Debris
206	U034	200	K	S01	Includes Debris
207	U035	200	K	S01	Includes Debris
208	U036	200	K	S01	Includes Debris
209	U037	200	K	S01	Includes Debris
210	U038	200	K	S01	Includes Debris
211	U039	200	K	S01	Includes Debris
212	U041	200	K	S01	Includes Debris
213	U042	200	K	S01	Includes Debris
214	U043	200	K	S01	Includes Debris
215	U044	200	K	S01	Includes Debris
216	U045	200	K	S01	Includes Debris
217	U046	200	K	S01	Includes Debris
218	U047	200	K	S01	Includes Debris
219	U048	200	K	S01	Includes Debris
220	U049	200	K	S01	Includes Debris
221	U050	200	K	S01	Includes Debris
222	U051	200	K	S01	Includes Debris
223	U052	200	K	S01	Includes Debris
224	U053	200	K	S01	Includes Debris
225	U055	200	K	S01	Includes Debris
226	U056	200	K	S01	Includes Debris
227	U057	200	K	S01	Includes Debris
228	U058	200	K	S01	Includes Debris
229	U059	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
230	U060	200	K	S01	Includes Debris
231	U061	200	K	S01	Includes Debris
232	U062	200	K	S01	Includes Debris
233	U063	200	K	S01	Includes Debris
234	U064	200	K	S01	Includes Debris
235	U066	200	K	S01	Includes Debris
236	U067	200	K	S01	Includes Debris
237	U068	200	K	S01	Includes Debris
238	U069	200	K	S01	Includes Debris
239	U070	200	K	S01	Includes Debris
240	U071	200	K	S01	Includes Debris
241	U072	200	K	S01	Includes Debris
242	U073	200	K	S01	Includes Debris
243	U074	200	K	S01	Includes Debris
244	U076	200	K	S01	Includes Debris
245	U077	200	K	S01	Includes Debris
246	U078	200	K	S01	Includes Debris
247	U079	200	K	S01	Includes Debris
248	U080	200	K	S01	Includes Debris
249	U081	200	K	S01	Includes Debris
250	U082	200	K	S01	Includes Debris
251	U083	200	K	S01	Includes Debris
252	U084	200	K	S01	Includes Debris
253	U085	200	K	S01	Includes Debris
254	U086	200	K	S01	Includes Debris
255	U087	200	K	S01	Includes Debris
256	U088	200	K	S01	Includes Debris
257	U089	200	K	S01	Includes Debris
258	U090	200	K	S01	Includes Debris
259	U091	200	K	S01	Includes Debris
260	U092	200	K	S01	Includes Debris
261	U093	200	K	S01	Includes Debris
262	U094	200	K	S01	Includes Debris
263	U095	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
264	U096	200	K	S01	Storage-Container
265	U097	200	K	S01	Includes Debris
266	U098	200	K	S01	Includes Debris
267	U099	200	K	S01	Includes Debris
268	U101	200	K	S01	Includes Debris
269	U102	200	K	S01	Includes Debris
270	U103	200	K	S01	Includes Debris
271	U105	200	K	S01	Includes Debris
272	U106	200	K	S01	Includes Debris
273	U107	200	K	S01	Includes Debris
274	U108	200	K	S01	Includes Debris
275	U109	200	K	S01	Includes Debris
276	U110	200	K	S01	Includes Debris
277	U111	200	K	S01	Includes Debris
278	U112	200	K	S01	Includes Debris
279	U113	200	K	S01	Includes Debris
280	U114	200	K	S01	Includes Debris
281	U115	200	K	S01	Includes Debris
282	U116	200	K	S01	Includes Debris
283	U117	200	K	S01	Includes Debris
284	U118	200	K	S01	Includes Debris
285	U119	200	K	S01	Includes Debris
286	U120	200	K	S01	Includes Debris
287	U121	200	K	S01	Includes Debris
288	U122	200	K	S01	Includes Debris
289	U123	200	K	S01	Includes Debris
290	U124	200	K	S01	Includes Debris
291	U125	200	K	S01	Includes Debris
292	U126	200	K	S01	Includes Debris
293	U127	200	K	S01	Includes Debris
294	U128	200	K	S01	Includes Debris
295	U129	200	K	S01	Includes Debris
296	U130	200	K	S01	Includes Debris
297	U131	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process (1) Process Codes (enter)	D. Process (2) Process Description [If a code is not entered in D (1)]
298	U132	200	K	S01	Includes Debris
299	U133	200	K	S01	Includes Debris
300	U134	200	K	S01	Includes Debris
301	U135	200	K	S01	Includes Debris
302	U136	200	K	S01	Includes Debris
303	U137	200	K	S01	Includes Debris
304	U138	200	K	S01	Includes Debris
305	U140	200	K	S01	Includes Debris
306	U141	200	K	S01	Includes Debris
307	U142	200	K	S01	Includes Debris
308	U143	200	K	S01	Includes Debris
309	U144	200	K	S01	Includes Debris
310	U145	200	K	S01	Includes Debris
311	U146	200	K	S01	Includes Debris
312	U147	200	K	S01	Includes Debris
313	U148	200	K	S01	Includes Debris
314	U149	200	K	S01	Includes Debris
315	U150	200	K	S01	Includes Debris
316	U151	200	K	S01	Includes Debris
317	U152	200	K	S01	Includes Debris
318	U153	200	K	S01	Includes Debris
319	U154	200	K	S01	Includes Debris
320	U155	200	K	S01	Includes Debris
321	U156	200	K	S01	Includes Debris
322	U157	200	K	S01	Includes Debris
323	U158	200	K	S01	Includes Debris
324	U159	200	K	S01	Includes Debris
325	U160	200	K	S01	Includes Debris
326	U161	200	K	S01	Includes Debris
327	U162	200	K	S01	Includes Debris
328	U163	200	K	S01	Includes Debris
329	U164	200	K	S01	Includes Debris
330	U165	200	K	S01	Includes Debris
331	U166	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
332	U167	200	K	S01	Includes Debris
333	U168	200	K	S01	Includes Debris
334	U169	200	K	S01	Includes Debris
335	U170	200	K	S01	Includes Debris
336	U171	200	K	S01	Includes Debris
337	U172	200	K	S01	Includes Debris
338	U173	200	K	S01	Includes Debris
339	U174	200	K	S01	Includes Debris
340	U176	200	K	S01	Includes Debris
341	U177	200	K	S01	Includes Debris
342	U178	200	K	S01	Includes Debris
343	U179	200	K	S01	Includes Debris
344	U180	200	K	S01	Includes Debris
345	U181	200	K	S01	Includes Debris
346	U182	200	K	S01	Includes Debris
347	U183	200	K	S01	Includes Debris
348	U184	200	K	S01	Includes Debris
349	U185	200	K	S01	Includes Debris
350	U186	200	K	S01	Includes Debris
351	U187	200	K	S01	Includes Debris
352	U188	200	K	S01	Includes Debris
353	U189	200	K	S01	Includes Debris
354	U190	200	K	S01	Includes Debris
355	U191	200	K	S01	Includes Debris
356	U192	200	K	S01	Includes Debris
357	U193	200	K	S01	Includes Debris
358	U194	200	K	S01	Includes Debris
359	U196	200	K	S01	Includes Debris
360	U197	200	K	S01	Includes Debris
361	U200	200	K	S01	Includes Debris
362	U201	200	K	S01	Includes Debris
363	U202	200	K	S01	Includes Debris
364	U203	200	K	S01	Includes Debris
365	U204	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
366	U205	200	K	S01	Includes Debris
367	U206	200	K	S01	Includes Debris
368	U207	200	K	S01	Includes Debris
369	U208	200	K	S01	Includes Debris
370	U209	200	K	S01	Includes Debris
371	U210	200	K	S01	Includes Debris
372	U211	200	K	S01	Includes Debris
373	U213	200	K	S01	Includes Debris
374	U214	200	K	S01	Includes Debris
375	U215	200	K	S01	Includes Debris
376	U216	200	K	S01	Includes Debris
377	U217	200	K	S01	Includes Debris
378	U218	200	K	S01	Includes Debris
379	U219	200	K	S01	Includes Debris
380	U220	200	K	S01	Includes Debris
381	U221	200	K	S01	Includes Debris
382	U222	200	K	S01	Includes Debris
383	U223	200	K	S01	Includes Debris
384	U225	200	K	S01	Includes Debris
385	U226	200	K	S01	Includes Debris
386	U227	200	K	S01	Includes Debris
387	U228	200	K	S01	Includes Debris
388	U234	200	K	S01	Includes Debris
389	U235	200	K	S01	Includes Debris
390	U236	200	K	S01	Includes Debris
391	U237	200	K	S01	Includes Debris
392	U238	200	K	S01	Includes Debris
393	U239	200	K	S01	Includes Debris
394	U240	200	K	S01	Includes Debris
395	U243	200	K	S01	Includes Debris
396	U244	200	K	S01	Includes Debris
397	U246	200	K	S01	Includes Debris
398	U247	200	K	S01	Includes Debris
399	U248	200	K	S01	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
400	U249	200	K	S01	Includes Debris
401	U271	200	K	S01	Includes Debris
402	U278	200	K	S01	Includes Debris
403	U279	200	K	S01	Includes Debris
404	U280	200	K	S01	Includes Debris
405	U328	200	K	S01	Includes Debris
406	U353	200	K	S01	Includes Debris
407	U359	200	K	S01	Includes Debris
408	U364	200	K	S01	Includes Debris
409	U367	200	K	S01	Includes Debris
410	U372	200	K	S01	Includes Debris
411	U373	200	K	S01	Includes Debris
412	U387	200	K	S01	Includes Debris
413	U389	200	K	S01	Includes Debris
414	U394	200	K	S01	Includes Debris
415	U395	200	K	S01	Includes Debris
416	U404	200	K	S01	Includes Debris
417	U409	200	K	S01	Includes Debris
418	U410	200	K	S01	Includes Debris
419	U411	200	K	S01	Includes Debris
420	WPCB	5,000	K	S01	Includes Debris
421	WP01	2,000	K	S01	Includes Debris
422	WP02	2,000	K	S01	Includes Debris
423	WP03	500	K	S01	Includes Debris
424	WT01	20,000	K	S01	Includes Debris
425	WT02	20,000	K	S01	Includes Debris
426	WSC2	5,000	K	S01	Includes Debris
427	K013	200	K	S01	Includes Debris
428	K044	200	K	S01	Includes Debris

XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements.

XVI. Facility Drawing

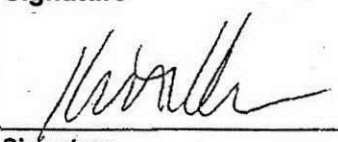
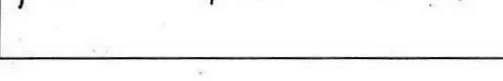
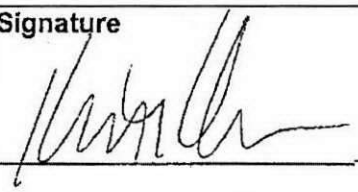
All existing facilities must include a scale drawing of the facility (refer to Instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to Instructions for more detail).

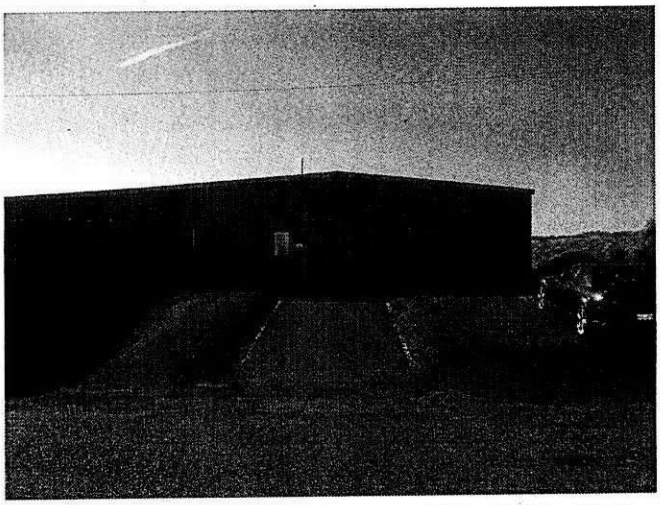
XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

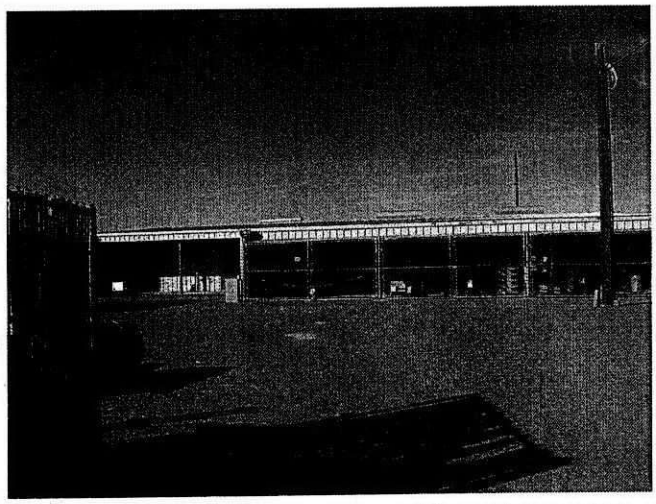
Operator* Name and Official Title (type or print) Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office	**Signature** 	**Date Signed** 12/15/05
Co-Operator** Name and Official Title (type or print) Roby D. Enge, Director Environment, Safety, Health and Quality Pacific Northwest National Laboratory	**Signature** 	**Date Signed** 11/30/05
Co-Operator** – Address and Telephone Number 3350 George Washington Way P.O. Box 999 Richland, WA 99352 (509) 376-1187		
Facility-Property Owner* Name and Official Title (type or print) Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office	**Signature** 	**Date Signed** 12/15/05

Comments

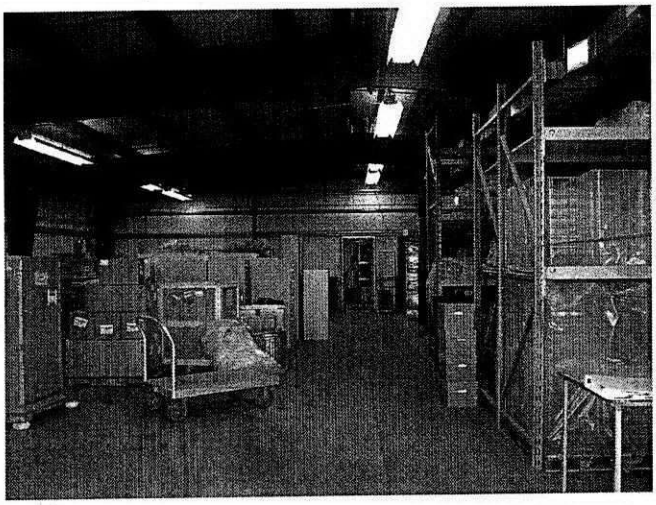
331-C Storage Unit



331-C Front Photo Taken 2005

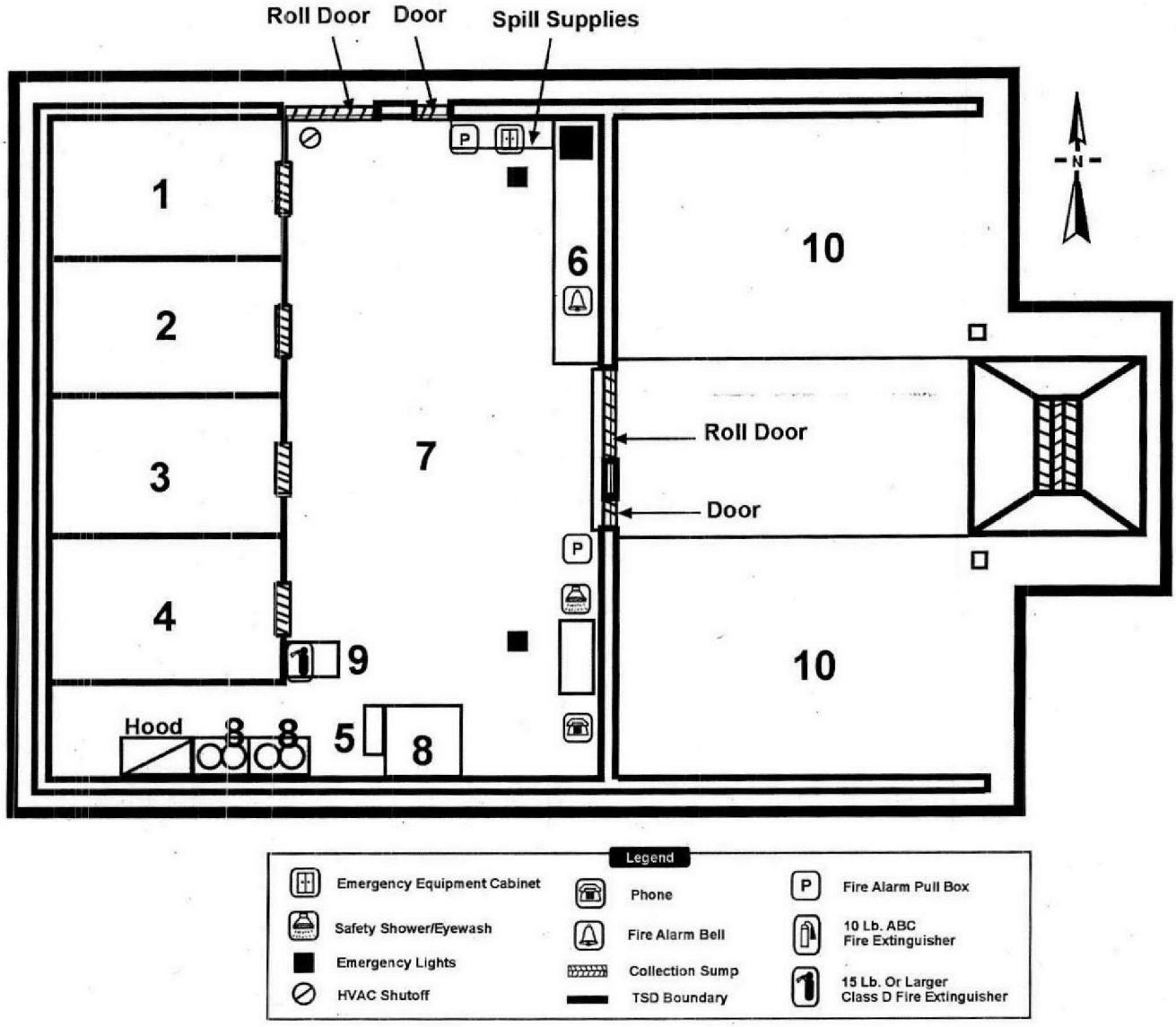


331-C East Side Photo Taken 2005



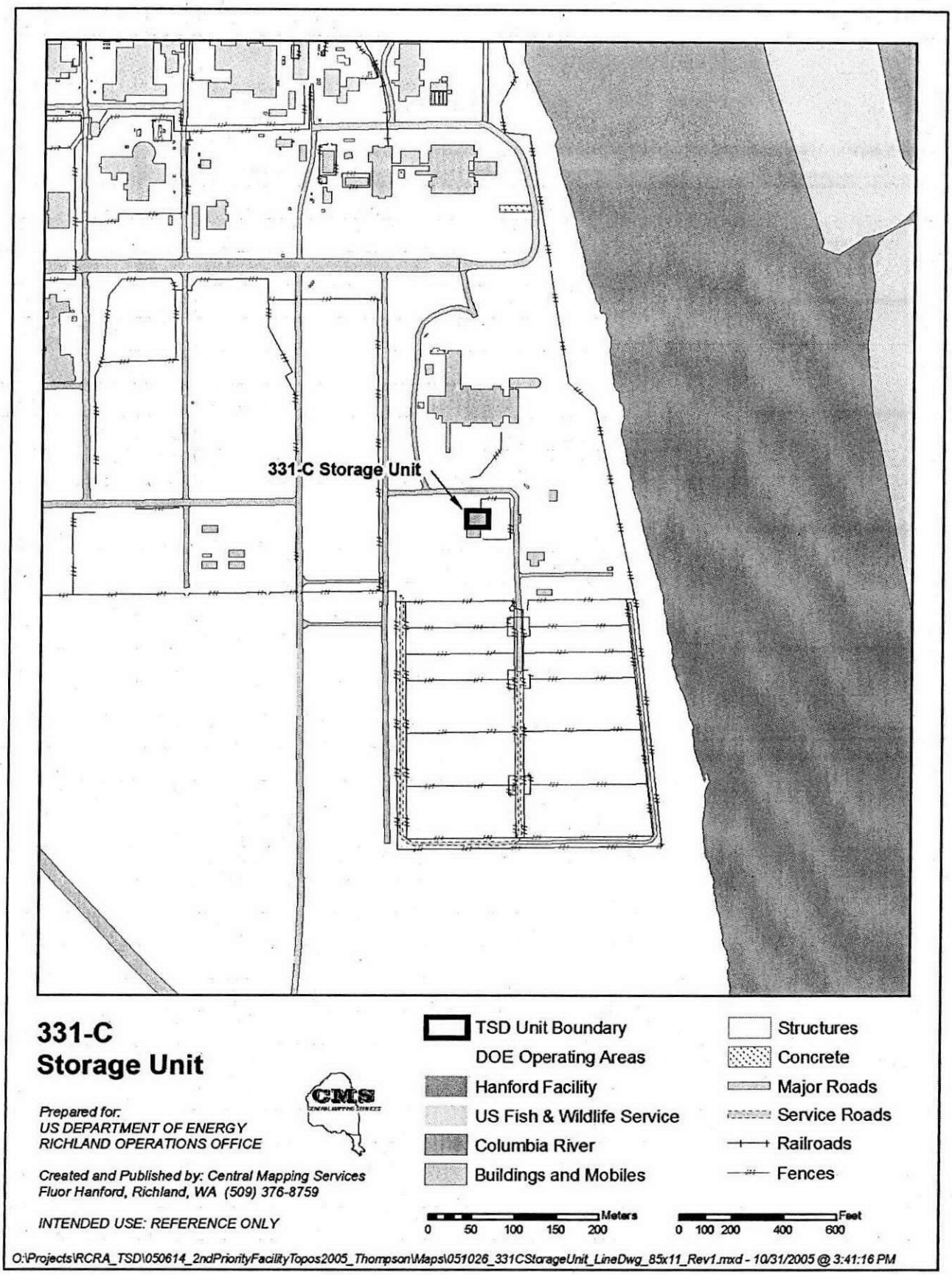
331-C Inside Photo Taken 2005

331-C Storage Unit



Legend

1. Acids, Oxidizers
2. Poisons, Class 9
3. Alkaline, WSDW, Organic Peroxides
4. Organics Flammable and Compressed Aerosols
5. Compressed gases
6. Universal/Recycling Storage Area
7. Class 9, WSDW, Non-flammable and Compatible Waste
8. Flammable Storage
9. Explosive Magazine
10. Outdoor Non-regulated Drum Storage


331-C Storage Unit
331-C
Storage Unit
Prepared for:
US DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
CMS
Created and Published by: Central Mapping Services
Fluor Hanford, Richland, WA (509) 376-8759
INTENDED USE: REFERENCE ONLY
TSD Unit Boundary
DOE Operating Areas
Hanford Facility
US Fish & Wildlife Service
Columbia River
Buildings and Mobiles
Structures
Concrete
Major Roads
Service Roads
Railroads
Fences
Meters
0 50 100 150 200
Feet
0 100 200 400 600
O:\Projects\RCRA_TSD\050614_2ndPriorityFacilityTopos2005_Thompson\Maps\051026_331CStorageUnit_LineDwg_85x11_Rev1.mxd - 10/31/2005 @ 3:41:16 PM

Chapter 2.0 Unit Description and General Provisions

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2.0 UNIT DESCRIPTION AND GENERAL PROVISIONS

This chapter briefly provides a general overview of the 331-C Storage Unit, including:

- Topography
- Location information
- Performance standards
- Buffer monitoring zones

2.1 331-C STORAGE UNIT

The 331-C Storage Unit is a dangerous waste storage unit owned and operated by DOE and co-operated by PNNL. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of dangerous waste. It is an integral part of the Hanford Site's waste management system.

The 331-C Storage Unit is a one-story metal building with fenced exterior areas constructed in the early 1970s. The unit is located within the south portion of the 300 Area, as shown in Chapter 1.0, and was formerly used for equipment storage. Unit upgrades were completed in 2006 to meet requirements for storage of dangerous waste. Waste storage began in March 2006 in accordance with a Temporary Authorization granted by the Department of Ecology.

Varieties of small volume chemical wastes are generated by PNNL's research laboratory activities under contract to DOE. These wastes are brought to the 331-C Storage Unit and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30- to 55-gallon drum. When a sufficient number of shipping containers of waste have accumulated, they are manifested for shipment, generally to permitted off-site recycling, treatment or disposal facilities.

Dangerous wastes are stored in Room 1 of the building and in the covered area adjacent to the building. The indoor storage area has been equipped with a secondary containment system to facilitate storage of containerized wastes. In addition, four storage "cells" have been constructed within the bay area for segregated storage of incompatible waste streams. Each of the cells is 12' × 18', enclosed by 6"-high angle iron bolted and sealed to the floor and a grated containment trench at the opening of each cell to prevent any migration of waste spills. Each cell is its own separate secondary containment system. Drum-quantity storage for incompatible wastes is allowed in these cells and has also been provided in separate areas of the building. A detailed description of these areas is given in Chapter 4.0.

The 331-C Storage Unit is equipped with electric heaters and a cooling system with a capacity of 5 tons, to provide relatively constant temperatures during storage of dangerous wastes. These systems are adequate to maintain interior temperatures in the range of 50-85°F during normal ambient temperatures of 10-100°F.

A small, laboratory-style fume hood installed on the south wall in the storage area is used for waste verification, compatibility testing, and small-volume waste work.

A simplified building layout and individual storage cell descriptions are shown in Chapter 4.0.

2.2 TOPOGRAPHIC MAP

Refer to Chapter 1.0 for map information.

2.3 PERFORMANCE STANDARD

The 331-C Storage Unit was designed to minimize the exposure of personnel to dangerous wastes and hazardous substances and to prevent dangerous wastes and hazardous substances from reaching the environment.

In addition, measures are taken to confirm that 331-C Storage Unit is maintained and operated, to the maximum extent practicable given the limits of technology, in a manner that prevents:

- Degradation of groundwater quality
- Degradation of air quality by open burning or other activities
- Degradation of surface water quality
- Destruction or impairment of flora or fauna outside of the unit
- Excessive noise
- Negative aesthetic impacts
- Unstable hillsides or soils
- Use of processes that do not treat, detoxify, recycle, reclaim, and recover waste material to the extent economically feasible
- Endangerment to the health of employees or the public near the unit.

The measures taken to prevent each of the above negative effects from occurring are described in the following sections.

2.3.1 Measures to Prevent Degradation of Groundwater Quality

Degradation of groundwater quality is prevented by storing waste containers within an enclosed building with a sealed concrete floor. All drains and sumps in areas where wastes are stored are blocked to prevent release of spilled material to the environment. The 331-C Storage Unit accepts only those packages meeting applicable DOT requirements. Opening of containers is done only in areas with spill containment. Design and administrative controls significantly reduce the possibility of release of dangerous waste to the environment through soil or groundwater contamination.

2.3.2 Measures to Prevent Degradation of Air Quality by Open Burning or Other Activities

No open burning occurs at the 331-C Storage Unit. There is no vegetation around the 331-C Storage Unit, and the area around the unit is paved or graveled, thereby reducing the risk of fire or wind erosion. Combustible and flammable waste is packaged in a manner that reduces the potential for fire and stored in fireproof cabinets unless staged for shipment.

2.3.3 Measures to Prevent Degradation of Surface Water Quality

The potential for degradation of surface water quality is extremely low, due to the manner in which the Unit is designed and operated. All waste handling activities (i.e., loading/unloading, container opening, waste transfer) presenting the opportunity for spills are conducted inside the unit. All exits from storage areas of the 331-C Storage Unit are equipped with spill collection sumps to prevent spilled material from escaping. The Unit is 500 feet from, and has no pipes to the Columbia River.

2.3.4 Measures to Prevent Destruction of Impairment of Flora or Fauna Outside of the Unit

The 331-C Storage Unit is located in the southern portion the 300 Area. The 300 Area is highly developed, and areas not occupied by buildings are generally paved or graveled. As a result, flora or fauna are generally absent within the 300 Area except for several grassed areas. Measures to prevent destruction or impairment of flora or fauna outside the 300 Area are the same as those to prevent releases from the unit (i.e., all waste handling is performed within an enclosed area having spill collection sumps).

2.3.5 Measures to Prevent Excessive Noise

During normal operations at the 331-C Storage Unit, excessive noise is not generated. The major sources of noise are waste transport and handling equipment (e.g., forklifts, light vehicles). The noise generated at the 331-C Storage Unit is compatible with the types of activities generated at neighboring facilities in the 300 Area.

2.3.6 Measures to Prevent Negative Aesthetic Impacts

The 331-C Storage Unit does not injure or destroy the surrounding flora and fauna. The Unit stores waste in approved containers within the confines of the structure. The building's appearance is similar to neighboring facilities. For these reasons, the unit presents no negative aesthetic impacts.

2.3.7 Measures to Prevent Unstable Hillsides or Soils

There are no naturally unstable hillsides near the 331-C Storage Unit. The soil beneath and around the unit was compacted prior to construction.

2.3.8 Measures to Prevent the Use of Processes That Do Not Treat, Detoxify, Recycle, Reclaim, and Recover Waste Material to the Extent Economically Feasible

The 331-C Storage Unit was established, in part, to enhance DOE's and PNNL's efforts to eliminate or minimize dangerous waste generation, and to treat, detoxify, recycle, reclaim, and recover waste materials.

Offsite waste management options for dangerous wastes being shipped from the 331-C Storage Unit are evaluated according to the following order of preference:

1. Recycling, including solvent reprocessing, oil recycling, metals recovery, burning for energy recovery, etc.
2. Treatment, including incineration, volume and/or toxicity reduction, chemical destruction, etc.
3. Land disposal is viewed as the least favored option and is generally only used for treatment residues, spill cleanup residues, or when treatment is not feasible.

When permitted by law and/or contractual obligations, the 331-C Storage Unit staff tries to use this hierarchy without regard to minor variations in cost, e.g., if recycling is available but slightly more expensive than land disposal, recycling is utilized.

2.3.9 Measures to Prevent Endangerment to the Health of Employees or the Public Near the Unit

The 331-C Storage Unit is within the southern portion of the 300 Area, which is located approximately 1 mile north of the corporate limits of the City of Richland. Public entry to the 300 Area is not allowed; members of the public, therefore, cannot enter the 331-C Storage Unit. Exposure of members of the

public or employees to dangerous and mixed waste constituents is prevented through administrative controls over the designation, packaging, loading, transporting, and storing of the wastes received at the 331-C Storage Unit. In addition, physical controls exist (e.g., spill collection sumps) to prevent release of wastes or waste constituents in the event of a spill.

Employees are trained to handle and store waste packages (Chapter 8.0). The training includes dangerous waste awareness, emergency response, and workplace safety. Protective equipment, safety data, and hazardous materials information are supplied by operations management and are readily available for employee use.

A contingency plan, including emergency response procedures, is in place and is implemented for spill prevention, containment, and countermeasures to reduce safety and health hazards to employees, the environment, and the public. The contingency plan is described in Chapter 7.0.

2.3.10 Seismic Considerations

The 331-C Storage Unit was constructed according to the Uniform Building Code, 1976 edition. Zone 2B was used for the Seismic Design and the load determinations. Currently the governing Code is the 2003 International Building Code. Section 3403 addresses Additions, Alterations or Repairs and section 3403.2 addresses the structural implications of an alteration, which is what was used during the building modification process. The International Building Code requires that alterations shall not increase the force on any element of an existing structure by more than 5% and if so, the element must be in compliance with Code (2003 IBC). Also, the strength of any element of the existing structure shall not be decreased unless it is shown to be in compliance with Code (2003 IBC). During the 331-C Storage Unit modification process that was completed in February of 2006, the shear bracing was revised from the center bay area, and both adjacent bays. This additional bracing nearly doubles the shear capacity of the wall. No additional mass or external load was added to the building, so there was no negative affect to the structure with respect to any condition, seismic included. Since there was no affected change to the loading conditions or reduced structural capacity of the building, compliance with the 1976 Uniform Building Code is considered compliant with the 2003 Uniform Building Code.

2.3.11 Traffic Information

The DOE-controlled Hanford Site is traversed by numerous primary and secondary roads. The DOE roadways inside the site, except for Routes 4S and 10 south of the Wye Barricade, are restricted to authorized personnel and cannot be accessed by the general public. The majority of the site traffic consists of light duty vehicles. The primary routes are constructed of bituminous asphalt with an underlying aggregate base in accordance with the U.S. Department of Transportation requirements. The secondary routes are constructed of layers of an oil and rock mixture with an underlying aggregate base. Currently, no load bearing capacities of these roads are available; however, loads are large as 140 pounds per square inch have been transported without observed damage to road surfaces.

Wastes generated at other onsite facilities outside the 300 area are transported over Government maintained roads. These roads are accessible to the general public only south of the Wye Barricade. In addition, waste shipments from the 331-C storage Unit to offsite treatment, disposal or recycling facilities are shipped over public accessible roads enroute to the consignee.

The loading/unloading areas at the 331-C Storage Unit are constructed of 8" thick reinforced 3000 psi concrete with #4 rebar set 12" on center each way. Heavy duty steel grating was installed over the containment sump with a uniform safe loading of 4,744 psf.

2.4 BUFFER MONITORING ZONES

Buffer and monitoring zones around the 331-C Storage Unit are described in the following sections.

2.4.1 Ignitable or Reactive Waste Buffer Zone

Ignitable and reactive wastes are stored in the 331-C Storage Unit in compliance with the requirements of the 1988 Uniform Fire Code, Article 79, Division II (International Conference of Building Officials 1991). Quantity limits for storage are established to comply with requirements for Class B occupancy. Structures surrounding the 331-C Storage Unit are laboratory and office buildings, which are occupied during normal working hours. The nearest adjacent facility is the 331 Building, which is approximately 350 ft north of the 331-C Storage Unit. The closest 300 Area boundary is to the east fence, which is approximately 450 ft east of the 331-C Storage Unit.

2.4.2 Reactive Waste Buffer Zone

Storage of certain reactive wastes listed in WAC 173-303-630(8)(a) occurs at the 331-C Storage Unit. These wastes have special storage requirements more stringent than those shown in Section 2.4.1. They are stored in accordance with this section and with the Uniform Building Code's Table 77.201, latest edition. The 1988 edition requires buffer zones in Class B occupancies of 44 inches for storage of such wastes, and the storage locations in the 331-C Storage Unit reflecting appropriate buffer zones are noted in Chapter 4.0. These wastes are only occasionally stored at the unit, depending on generation by individual research projects.

The occupancy storage limitations imposed by UBC for Class B occupancy are as follows:

- Explosives: 1 lb
- Organic Peroxide, unclassified, detonatable: 1 lb
- Pyrophoric: 4 lbs
- Unstable (reactive), Class 4: 1 lb.

These limits are allowed to be doubled when stored in flammable storage cabinets, as is done at the 331-C Storage Unit; hence, the practical storage limits at the 331-C Storage Unit are double those shown here.

Chapter 3.0 Waste Analysis

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3.0 WASTE ANALYSIS

The purpose of this Waste Analysis Plan (WAP) is to document the waste acceptance process, sampling methodologies, analytical techniques, and processes that are undertaken for sampling and analysis of dangerous waste managed in the 331-C Storage Unit.

This chapter also provides information on the chemical, biological, and physical characteristics of the waste stored at the 331-C Storage Unit.

3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS

The dangerous waste stored at the 331-C Storage Unit can be categorized as originating from four basic sources:

- Listed Waste from specific and nonspecific sources
- Discarded commercial chemical products
- Waste from chemicals synthesized or created in research laboratories
- Discarded commercial products exhibiting dangerous waste characteristics and/or criteria.

Each of these waste categories is discussed below, including waste descriptions, hazard characteristics, and bases for hazard designations. This information includes that which must be known to treat, store, or dispose of the waste, as required under WAC 173-303-806(4)(a)(ii).

Listed Waste from Specific and Nonspecific Sources. Wastes from specific and nonspecific sources consist of those listed wastes identified in WAC 173-303-9904. Chapter 1.0 identifies the waste from this category with their estimated annual management quantities.

Halogenated and nonhalogenated solvents are in the form of spent solvents. Degreasing solvents (F001), as well as spent halogenated solvents (F002), are used primarily in research, although some commercial applications do exist (e.g., printing, duplicating). Spent non-halogenated solvents (F003, F004, and F005) also come primarily from research laboratories, although some is generated through maintenance applications. Manufacturing activities are not performed at Hanford; therefore, dangerous waste from specific sources (WAC 173-303-9904 "K" Waste) typically is not generated at PNNL. However, small quantities of K-listed waste have been generated from treatability studies and sample characterization activities at PNNL from time to time and could be stored at the 331-C Storage Unit. WPCB state source waste (PCB electrical equipment waste) has been generated in limited amounts in the past and could be stored at the 331-C Storage Unit if future generation activities occur.

F-listed waste is designated based on process knowledge (e.g., information from container labels or material safety data sheets, process information). Sampling may be performed if the generating unit does not have sufficient information to document the composition and characteristics of the waste. The waste generator is responsible for specifying the characteristics of the waste based on knowledge of the chemical products used (i.e., information supplied by the manufacturer) and the process generating the waste. These listed wastes are all designated as based on the criteria given in WAC 173-303-070. These wastes are also subject to LDR regulations under 40 CFR 268, and WAC-173-303-140 including disposal prohibitions and treatment standards.

Discarded Chemical Products. Discarded chemical products consist of those products described in WAC 173-303-081. Chapter 1.0, of the 331-C Storage Unit application, identifies all of the discarded chemical products listed in WAC 173-303-9903 and specifies an estimated maximum annual management quantity, based on prior experience. Chapter 1.0 lists all of these waste codes, however, because the wide variety of research activities conducted at Hanford presents the potential to generate any of these wastes.

These wastes (P waste and U waste) are typically received at the 331-C Storage Unit in the manufacturer's original container. These containers typically consist of glass and polyethylene jars or bottles and metal cans that have a volume equal to or less than 4 liters.

Wastes in this category are designated based on the generator's knowledge. As these waste are usually in original containers, information on the container label is verified by generator knowledge (i.e., knowledge that material is in its original container) and is used to identify contents. Waste in "as procured" containers (i.e., original container with intact label) are not sampled. These listed wastes contain those designated as DW as well as those designated as EHW. These wastes are also subject to LDR regulations under 40 CFR 268, including disposal prohibitions and treatment standards.

Waste from Chemicals Synthesized or Created in Research Laboratories. Waste from chemicals synthesized or created in research laboratories typically consist of organics in quantities of 100 g or less, received in small containers.

These wastes are designated based on the generator's knowledge or based on sampling and analysis. The generator's knowledge is used if the generating unit has kept accurate records of the identities and concentrations of constituents present in the waste (e.g., log sheets for accumulation containers). If information available from the generating unit is inadequate for waste designation, the waste is sampled, and the results of the analysis are used for designation. These wastes include those designated as state only dangerous waste under WAC 173-303-100 and those designated as characteristic dangerous waste under WAC 173-303-090. Chapter 1.0, of the 331-C Storage Unit application, includes all categories of toxic and persistent waste (i.e., both DW and EHW). The wide variety of research activities conducted at Hanford presents the potential that these wastes could be generated and requires subsequent management at the 331-C Storage Unit.

The wastes in this category include those designated as either DW or EHW. These wastes could also be federal LDR wastes regulated under 40 CFR 268 as well as state LDR wastes regulated under WAC 173-303-140 (e.g., organic/carbonaceous wastes).

Discarded Chemical Products Exhibiting Dangerous Waste Characteristics and/or Criteria. Many discarded chemical products handled in the 331-C Storage Unit are not listed in WAC 173-303-9903 but are still designated as dangerous waste since they exhibit at least one dangerous waste characteristic and/or criterion (described in WAC 173-303-090 and WAC 173-303-100). These wastes are included with those listed in Chapter 1.0, under waste codes D001 through D043, WT01, WT02, WP01, WP02, and WP03.

Waste in this category is designated based on the generator's knowledge. As these wastes are usually in their original containers, information on the container label is verified by the generator's knowledge and is used to identify the contents. These wastes contain those designated as DW as well as those designated as EHW. These wastes could also be federal LDR waste regulated under 40 CFR 268 as well as state LDR waste regulated under WAC 173-303-140 (e.g., organic/carbonaceous waste).

3.1.1 Waste in Piles

This section does not apply to the 331-C Storage Unit because these wastes are not stored in piles.

3.1.2 Landfilled Wastes

This section does not apply to the 331-C Storage Unit because these wastes are not placed in landfills.

3.1.3 Waste Incinerated and Waste Used in Performance Tests

This section does not apply to the 331-C Storage Unit because these wastes are not incinerated.

3.2 WASTE ANALYSIS PLAN

This section describes the processes used to obtain the information necessary to manage waste in accordance with the requirements of WAC 173-303.

3.2.1 Facility Description

The 331-C Storage Unit is a dangerous waste storage unit owned and operated by DOE and co-operated by PNNL. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of dangerous waste. It is an integral part of the Hanford Site's waste management system.

The 331-C Storage Unit is a one-story metal building with an adjacent covered area constructed in the early 1970s. The unit is located in the southern portion of the 300 Area, as shown in Chapter 1.0, and was formerly used for equipment storage. Unit upgrades were completed in 2006 to meet requirements for storage of dangerous waste. Waste storage under temporary authorization is expected to begin in February 2006 contingent on Ecology approval.

3.2.2 Description of Facility Processes and Activities

Varieties of small volume chemical wastes are generated by PNNL's research laboratory activities. These wastes are brought to the 331-C Storage Unit and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30 or 55-gallon drum. When a sufficient number of shipping containers of waste have accumulated, they are shipped to recycling facilities, or permitted treatment or disposal facilities.

Dangerous wastes are stored in Room 1 of the building and in the covered area adjacent to the building. The indoor storage area has been equipped with a secondary containment system to facilitate storage of containerized wastes. In addition, four storage "cells" have been constructed within the bay area for segregated storage of incompatible waste streams. Each of the cells is 12' × 18', enclosed by 6 inch high angle iron bolted and sealed to the floor and a grated containment trench at the opening of each cell to prevent any migration of waste spills. Each cell has its own separate secondary containment system. Drum-quantity storage for incompatible wastes is allowed in these cells and in separate areas of the building. A detailed description of these areas is given in Chapter 4.0.

Knowledge from the generator is generally sufficient to meet the requirements for a "detailed chemical, physical, and/or biological analysis" of wastes accepted at the 331-C Storage Unit for the following reasons:

- Wastes stored at the 331-C Storage Unit are generated on the Hanford Site and/or by PNNL research programs who maintain effective administrative control over individual waste generating units (i.e., the same organization generates the waste and operates the storage unit).
- Wastes stored at the 331-C Storage Unit may be discarded chemical products for which knowledge of waste characteristics is available without further analysis.
- Most of the waste stored at the 331-C Storage Unit is a result from research activities that are carefully controlled and documented; this documentation includes information on chemical constituents.
- To confirm the sufficiency and reliability of the knowledge provided by generators, onsite visits of the generating unit's areas are performed to familiarize waste management staff with the generator's processes. Data provided by the operations generating the waste, including waste characteristics and inventory information, are reviewed during these visits to check for proper characterization and identify any special requirements for safe management of the waste. Other methods for confirmation noted in WAC 173-303-300(2)(a) may be used instead of or in conjunction with onsite visits and data review in special situations.

Because of the importance of administrative controls for the purposes of waste analysis, processes for management of wastes from the time of generation through storage at the 331-C Storage Unit are described below. These processes demonstrate how sufficient knowledge is obtained to manage properly dangerous waste at the 331-C Storage Unit. In the event that such knowledge is not available, the 331-C Storage Unit requires sampling and analysis prior to shipment to the storage unit.

The 331-C Storage Unit personnel shall collect from the generator the information pursuant to 40 CFR 268.7(a) regarding LDR wastes, the appropriate treatment standards, whether the waste meets the treatment standards, and the certification that the waste meets the treatment standards, if necessary, as well as any waste analysis data that supports the generator's determinations. If this information is not supplied by the generator, then the 331-C Storage Unit personnel shall be responsible for completion and transmittal of all subsequent information regarding LDR wastes, pursuant to 40 CFR 268.7(b). All waste streams must be reevaluated when the generator and/or the 331-C Storage Unit personnel have reason to believe the process generating the waste, or the characteristic or the chemical constituents of the waste stream, has changed to determine compliance with LDR requirements in 40 CFR 268. Due to the reevaluation policy above and the evaluation of wastes whenever they are submitted (i.e. "standing profiles" are not typically used), an annual re-evaluation of waste streams is not performed. Re-evaluation will also be performed on offsite waste when a mismatch between the waste received and the description on the shipping paper or manifest occurs.

Volumetric Description of Waste. A wide range of waste volumes is collected from research and support activities. Typically, the largest unit container collected is a DOT container <0.46 m^3, while the smallest is a trace amount in a small vial. Each secondary containment sump at the entrances to the unit has a capacity of 168 gallons. No bulk containers in excess of 168 gallons will be accepted at the unit without management approval and an additional secondary containment system provided.

Large volume containers (greater than 4 L) commonly contain chemicals, such as those listed in WAC 173-303-9903 and -9904 and in 40 CFR 261.33, or commercial products, which exhibit one or more of the dangerous waste characteristics or criteria. Most of the containers generally contain chemicals for which information is easily accessible to determine dangerous designation. This information is generally obtained from the container label, for those wastes in original containers, or from the material safety data sheet (MSDS) for the product.

Notification for Storing of Waste: The waste analysis process begins when the waste management organization is notified of the presence of a chemical waste. The generating unit completes and transmits an electronic disposal request to accomplish this notification. The form describes the volume and chemical composition of waste in each waste container for disposal. Hazard and compatibility information is obtained for each item on the disposal request form to verify the safety of the waste management organization staff that collect and transport the waste and to verify safe and appropriate storage in the 331-C Storage Unit.

The compatibility and hazard class are determined using reference material that may include Condensed Chemical Dictionary, Merck Index, 49 CFR, NIOSH, Sigma-Aldrich, or any other creditable reference material that is applicable. The priority of hazard designation for those substances with multiple hazards or for mixtures is the same used by the DOT in 49 CFR 173.2.a.

Disposal Requests and other information used for determining waste designations and compatibility must meet four distinct needs of the dangerous waste manager and sample collector. They must enable each to:

- Identify those wastes that are designated dangerous in accordance with WAC 173-303 and whether those wastes are DW or EHW
- Determine whether the waste is restricted from land disposal under 40 CFR 268 or WAC 173-303-140 and whether it complies with applicable treatment standards under 40 CFR 268 or WAC 173-303-140
- Identify and verify specific morphological characteristics of waste in solid or solution form

- Outline how to safely handle, transport, analyze, store, and dispose of the waste product or sample.

Physical Analysis. Visual validation as a physical analysis activity is strongly relied upon to confirm the nature of a waste collected or sampled, and to determine the accuracy of the disposal request information received from the generating unit. It is impractical for the waste management organization to analyze chemically each container or vial of waste accepted for storage in the 331-C Storage Unit since the amount handled can exceed 10,000 containers per year. A more realistic approach to reducing risks to safety and the environment, and one implemented at the 331-C Storage Unit, includes trained and experienced personnel performing a visual inspection of the waste and direct inquiry of the generator. The waste is inspected to verify that it matches the description on the disposal request. If the waste is a discarded product, the contents of the container are inspected to verify that they match the description of the product. For other waste, e.g., spent solvents, waste descriptions are compared with the products in use at the generating unit. Generators are queried concerning the source of the waste and the materials used in the process generating the waste. This information is compared to the description of the waste on the disposal request. If, after visual inspection of the waste and interrogation of the generating unit personnel, any doubt remains as to the identity of the waste, the waste is sampled and analyzed by the generator.

Waste Collection at the Generating Unit. When satisfactory information has been obtained from the Disposal Request Form, waste management organization staff visits the generator storage area and makes a final inspection of the waste containers to determine whether the disposal request form and contents label information match completely. If the information on the disposal request matches with the container labeling and visual inspection, the waste is approved for storage. If discrepancies are found, the generator is required to resubmit the disposal request with accurate information. Unknown or unidentified materials are sampled for identification of constituents and remain in the 90-day accumulation area until the composition has been determined.

Labeling and Marking. After inspection of the waste at the generating unit, the approved waste is assigned a unique identification number, cell location, and hazard classification. Waste meeting Washington dangerous waste criteria under 173-303-100 are marked "Toxic" (for waste designated WT01 or WT02), and/or "Persistent" (for waste designated WP01, WP02, or WP03), in accordance with WAC 173-303-630(3). In addition, each waste container is labeled with a list of constituents and major risk(s). This computerized information helps the waste handlers verify safe handling, storage, retrieval, and transportation of dangerous waste.

Transportation. The labeled containers are transported to the 331-C Storage Unit by PNNL staff trained in applicable DOT requirements and emergency response. Waste is transported using a truck or light utility vehicle. For transport on roads accessible to the public, the vehicles are placarded in compliance with DOT regulations and documented in compliance with WAC 173-303-180, and Hanford Facility RCRA Permit Conditions II.P and/or II.Q as applicable.

Waste Handling, Storage, and Tracking at the 331-C Storage Unit. Waste received at the 331-C Storage Unit is put into 10 separate hazard classifications based on the 1988 Uniform Fire Code, Article 79, Division II (Interrnational Confererence of Building Officials 1991) and the DOT Segregation Table for Hazardous Materials (49 CFR 174.81):

1. Acids, Oxidizers
2. Poisons, Class 9
3. Alkaline, WSDW, Organic Peroxides
4. Organics, Flammables, and compressed Aerosols
5. Compressed gases
6. Universal/Recycling
7. Class 9, WSDW, Non-flammable and compatible waste
8. Flammable
9. Explosive Magazine

10. Outdoor, Non-regulated

Each hazard class has designated and clearly identified locations within the 331-C Storage Unit. Containers of dangerous wastes (10 gallons or less) are stored in a specific storage cabinet or shelf designed for that hazard class. The cabinets are located inside the appropriate storage cell (i.e., acid storage cabinet in acid cell). DOT-approved containers (typically 10 gallons and larger but less than 0.46 m^3) are segregated by hazard class and can be stored in an appropriate storage cell or on the main bay floor in the 331-C Storage Unit.

Storage limits for all chemicals are listed in Table 4-2. This table is incorporated into this section by reference.

Recordkeeping and Inventory Control. A computer tracking system has been developed to verify that complete records of current inventory, packaging, and shipping data are maintained. Records of the initial waste disposal request, waste analysis result (if required), waste designation, and shipping manifests are maintained. As wastes are received for disposal, the containers are labeled with the information described in the Labeling and Marking section above, including a unique computer identification number.

The endpoint of the process for most waste is proper packaging and transport of the waste to an approved recycler or treatment/disposal facility. Some commercial chemical products, however, are redistributed to other users. Final computer verification of the history and ultimate disposal of each waste container is entered when the material is shipped from the 331-C Storage Unit.

Current waste quantities in inventory are periodically verified and reported to the Unit Operations Supervisor. The inventory is checked by hazard class, which also provides a measure of current inventory versus established limits.

If it is determined that the 331-C Storage Unit inventory is within 5 percent of the limit for a given hazard classification, additional waste of that hazard class is not accepted into the 331-C Storage Unit until the inventory has been reduced. The unit-operating supervisor must approve exceptions.

Unknown Waste and Waste Constituent Verification. Containers with unknown waste compositions are not normally accepted at the 331-C Storage Unit. In the event that the 331-C Storage Unit staff is required to respond to a critical need of a generating unit in the future and pick up an unknown waste, it will be sampled at the unit and analyzed in accordance with PNNL's waste pending analysis process, which incorporates Ecology guidance (Technical Information Memorandum 82-5) for that process.

If, for any reason, 331-C Storage Unit personnel believe that more stringent analysis of non-reagent grade chemical waste is needed (e.g., mixtures), they will request that the generator have the waste analyzed by an approved analytical laboratory. Reasons for this request may be the questionable appearance of the waste, reevaluation in accordance with the criteria given in this section, or historically unreliable information from a particular generator. There is no established frequency for this sampling and analysis; it is conducted on an as-needed basis. This analysis must follow test procedures given in WAC-173-303-110(3). Analytical laboratories in the area with these capabilities include commercial, Hanford Site, and Battelle-operated laboratories. The generator must also provide the laboratory analysis confirming the waste composition when the waste management organization picks up the waste. This analysis will become part of the 331-C Storage Unit Operating Record.

3.2.3 Identification/EPA Classification and Quantities of Hazardous Wastes Managed within the 331-C Storage Unit

Refer to Section 3.1 for a description of the types and quantities of wastes managed at the 331-C Storage Unit.

3.2.4 Description of Hazardous Waste Management Units

The 331-C Storage Unit Waste Management Units are described in Chapter 4.0.

3.3 SELECTING WASTE ANALYSIS PARAMETERS

State and federal regulations [WAC 173-303-300(2) and (5)(a); WAC 173-303-140; 40 CFR 268.7(a)] require that information be obtained, documented, and/or reported on wastes received by a TSD unit. These requirements include verifying that only waste that meets 331-C Storage Unit unit-specific Permit requirements are accepted, and reporting the information required by WAC 173-303-380. In addition to providing a general description of the waste, the focus of the information collected for regulatory purposes is to verify that the 331-C Storage Unit is permitted to accept and store the waste.

The 331-C Storage Unit only accepts wastes that have been characterized properly. Before receipt or acceptance of waste at the 331-C Storage Unit, generators must supply adequate information to characterize and manage wastes properly.

One of the most important aspects of operating the 331-C Storage Unit in a safe manner is to prevent the mixing of incompatible wastes. For the purposes of this document, waste is considered compatible if, when mixed, waste does not (1) generate extreme heat or pressure, fire, or explosion, or violent reaction; (2) produce uncontrolled toxic mists, dusts, or gases in sufficient quantities to threaten human health; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility containing the waste; or (5) through other like means threaten human health or the environment.

Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste that is stored at the 331-C Storage Unit. The following are instances where sampling and laboratory analysis is required:

- inadequate information on PNNL-generated waste
- 5 percent waste verification for PNNL-generated waste
- 10 percent waste verification for non-PNNL-generated waste
- identification and characterization for unknown waste and spills within the unit

3.3.1 Parameter Selection Process

The selection of analytical parameters is based on the State of Washington's *Dangerous Waste Regulations*, WAC 173-303-300 and *EPA Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual* (EPA 1994).

At least five percent of the waste containers received at 331-C during a federal fiscal year (October 1 through September 30) will undergo confirmation of designation pursuant to Sections 3.2.2 and 3.2.3. The number of containers needed to meet the five percent requirement is five percent of the average of containers for the previous three months. For example if 200 containers are received in January, 180 in February, and 220 in March, then 10 containers of received waste must undergo confirmation of designation in April. All non-PNNL generating units, which ship more than 20 containers through 331-C Storage Unit in a fiscal year, will have at least one container sampled and analyzed. Containers, for which there is insufficient process knowledge, or analytical information to designate without sampling and analysis, may not be counted as part of the five percent requirement unless there is additional confirmation of designation independent of the generator designation. The generating unit's staff shall not select the waste containers to be sampled and analyzed other than identifying containers for which insufficient information is available to designate.

Containers of the following are exempt from the confirmation calculation above: Laboratory reagents or other unused products such as paint, lubricants, solvent, or cleaning products, whether received for redistribution, recycling, or as waste. To qualify for this exemption, such materials must be received at the 331-C Storage Unit in their original containers.

Prior to acceptance of wastes at the 331-C Storage Unit, confirmation of designation may be required. Wastes that shall undergo confirmation of designation may be divided into two groups; those that easily yield a representative sample (Category I) and those that do not (Category II). The steps for each type are outlined below along with a description of which wastes fall into each category:

Category I. If a waste that easily yields a representative sample is received, a representative sample will be taken from the waste containers selected. If more than one phase is present, each phase must be tested individually. The following field tests will be performed as appropriate for the waste stream:

- Reactivity–oxidizer, cyanide, and sulfide tests. These tests will not be performed on materials known to be organic peroxides, ethers, and/or water reactive compounds.
- Flashpoint/explosivity–Closed cup flashpoint measurement instrument.
- pH–by pH meter or pH paper (SW-846-9041)[1,2]. This test will not be performed on non-aqueous materials.
- Halogenated organic compounds.
- Volatile organic compounds–by photo or flame ionization tester[1], by gas chromatography with or without mass spectrometry, or by melting point and/or boiling point determination.

If the sample data observed meets the parameters specified in their documentation, the confirmation of designation is complete, and the waste may be accepted. If not, the waste is rejected and returned to the generating unit for additional characterization. The waste will be required to be resubmitted with a revised Disposal Request following the additional characterization activity.

When mathematically possible, the Permittees shall perform confirmation on an equal number of Category I and Category II containers.

Category II. If a representative sample is not easily obtained (for example, discarded machinery or shop rags), or if the waste is a labpack or discarded laboratory reagent container, the following steps will be performed:

a. Visually verify the waste. Examine each selected container to verify that it matches the data provided on the Disposal Request form(s) provided to document the waste. Labpacks and combination packages that are accepted from non-PNNL generators must be removed from the outer container. If the waste matches the description specified in its documentation, confirmation of designation is complete, and the waste may be accepted. If not, the waste is rejected and returned to the generating unit, and the generating unit revises and resubmits the documentation to reflect the actual contents. If necessary, the waste shall be re-designated utilizing the designation methods identified in WAC 173-303-070 through 173-303-100.

3.3.2 Criteria and Rational for Parameter Selection

Waste-testing methods, parameters, and the rationale for these parameters are summarized in Table 3-1. Waste testing methods and references to these methods are as specified in WAC 173-303-110(3) (e.g., *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA SW-846 and *Chemical Testing Methods for Designating Dangerous Waste*, Ecology Publication 97-407) or approved by Ecology in accordance with WAC 173-303-110(5). These methods are summarized in Table 3-1.

Testing parameters for each type of waste were selected to obtain data sufficient to designate the waste properly under WAC 173-303-070, meet requirements for Land Disposal Restrictions, and manage the

[1]Theses instruments are field calibrated or checked for accuracy daily when in use.
[2] The pH paper must have a distinct color change every 0.5-pH units, and each batch of paper must be calibrated against certified pH buffers or by comparison with a pH meter calibrated with certified pH buffers.

waste properly. If information on the source of the waste is available, then all parameters might not be required, e.g., exclusion of testing for pesticides from a metal-machining operation.

Some of the parameters that are considered for waste received at the 331-C Storage Unit are as follows.

- Physical description–used to determine the general characteristics of the waste. This facilitates subjective comparison of the sampled waste with previous waste descriptions or samples. A physical description is also used to verify the observational presence or absence of free liquids.
- pH–used to identify the pH and corrosive nature of an aqueous or solid waste to aid in establishing compatibility strategies and to indicate if the waste is acceptable for storage in the 331-C Storage Unit.
- Cyanide–used to indicate whether the waste produces hydrogen cyanide upon acidification below pH 2.
- Sulfide screen–used to indicate if the waste produces hydrogen sulfide upon acidification below pH 2.
- Halogenated hydrocarbon content screen–used to indicate whether chlorinated hydrocarbons or polychlorinated biphenyls (PCBs) are present in waste and to determine if the waste needs to be managed in accordance with the regulations prescribed in the *Toxic Substance Control Act of 1976*.
- Ignitability–used to identify waste that must be managed and protected from sources of ignition or open flame.
- Testing kits–used to determine waste characteristics and verify generator knowledge. The testing procedures for each test are included in the appropriate test kit.

3.3.3 Special Parameter Selection Requirements

The 331-C Storage Unit does not have any process vents that manage hazardous waste with organic concentrations of at least 10 parts per million by weight percent, or pumps, or compressors used more than 300 hours per year that come into contact with hazardous waste with an organic concentration of at least 10 percent by weight.

A variety of small volume chemical wastes is generated by PNNL's research laboratory activities. These containers typically range in sizes from 10 ml to 20 gallon. These wastes are brought to the 331-C Storage Unit and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30- to 55-gallon drum. All containers having a design capacity greater than 0.1 m3 to less than or equal to 0.46 m3 are equipped with a cover and complies with all applicable Department of Transportation regulations on packaging hazardous waste for transport under 49 CFR part 178.

DOT approved intermediate bulk packaging may be utilized for some solid wastes. These containers range in size from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft) and are approved for solid waste only.

3.4 SELECTING SAMPLING PROCEDURES

3.4.1 Sampling Strategies and Equipment

Sample collection methods conform to the representative sample methods referenced in WAC 173-303-110(2). The summary of test parameters, rationales, and testing methods are identified in Table 3-1.

Representative samples of liquid waste from containers (vertical "core sections") are typically obtained using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler is long enough to reach the bottom of the container in order to provide a representative sample of all phases of the containerized liquid waste. If a liquid waste has more than one phase, each phase is separated for individual testing, depending on the waste management pathways of the phases.

Other waste types that might require sampling are sludges, powders, and granules. In general, nonviscous sludges are sampled using a COLIWASA. Highly viscous sludges and cohesive solids are sampled using a trier, as specified in SW-846. Dry powders and granules are sampled using a thief, also as specified in SW-846.

Samplers are constructed of material compatible with the waste. In general, aqueous liquids are sampled using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene samplers. Disposable samplers are used whenever possible to eliminate the potential for cross-contamination. If non-disposable sampling equipment is used, it is decontaminated between samples.

Representative sampling may be requested by unit staff to verify proper waste identification. Unit personnel or the generating unit producing the waste may perform sampling. The number of grab samples collected from a container depends on the amount of waste present and on the homogeneity of the waste as determined by observation. In some cases, there will be only one container of waste present. In such cases, only one vertical composite sample will be collected (e.g., COLIWASA). If more than one container is present, a random number of samples will be collected and analyzed statistically using the procedures specified in Section 9.2 of SW-846.

In all instances, sampling methods will conform to the representative sample method referenced in WAC 173-303-110(2), i.e., ASTM standards for solids and SW-846 for liquids. The specific sampling methods and equipment used varies with the chemical and physical nature of the waste material and the sampling circumstances.

3.4.2 Sampling Preservation and Storage

All sample containers, preservation techniques, and hold times follow SW-846 protocol. Many samples are analyzed at the 331-C Storage Unit utilizing prepackaged test kits and are not preserved.

3.4.3 Sampling QA/QC Procedures

Pacific Northwest National Laboratory is committed to maintaining a high standard of quality for all of its activities. A crucial element in maintaining that standard is a quality-assurance program that provides management controls for conducting activities in a planned and controlled manner and enabling the verification of those activities.

The QA/QC objective of the 331-C Storage Unit is to control and characterize errors associated with collected data and to illustrate that waste testing has been performed according to specification in this waste analysis plan.

The 331-C Storage Unit will verify that precision and accuracy are maintained throughout the waste analysis process. For analysis using SW-846 methods, the program will follow the QA/QC guidance set forth in SW-846 at a minimum. Good laboratory practices that encompass sampling, sampling handling, housekeeping, and safety are followed throughout the process. There are many elements of QA/QC associated with the sampling processes at the 331-C Storage Unit. These practices verify that all data and the decisions based on that data are technically sound, statistically valid, and properly documented.

Activities pertaining to waste analysis include, but are not limited to, the preparation, review, and control of procedures and the selection of analytical laboratories. The Laboratory's QA standards-based management system subject area has administrative procedures that establish requirements and provide guidance for the preparation of analytical and technical (i.e., sampling, chain-of-custody, work processes) procedures, as well as other administrative procedures. Procedures undergo a review cycle and, once issued, are controlled to verify that only current copies are used.

The primary purpose of waste testing is to verify that the waste is properly characterized in lieu of process-knowledge data in compliance with RCRA requirements for general waste analysis [WAC 173-303-300(2); 40 CFR 264.13]. Waste testing also is performed to verify the safe management of waste being stored, the proper disposition of residuals from incidents that might occur, and control of

the acceptance of waste for storage. The specific objectives of the waste-sampling and analysis program at the 331-C Storage Unit are as follows:

- Identify the presence of waste that is substantially different from waste currently stored.
- Provide a detailed chemical and physical analysis of a representative sample of the waste before the waste is accepted at or transferred from the 331-C Storage Unit to an offsite TSD facility to ensure proper management and disposal.
- Provide an analysis that is accurate and up-to-date to ensure that waste is properly treated and disposed of.
- Ensure safe management of waste undergoing storage at the 331-C Storage Unit.
- Ensure proper disposal of residuals.
- Ensure compliance with LDRs.
- Identify and reject waste that does not meet the 331-C Storage Unit's acceptance requirements (e.g., incomplete information).
- Identify and reject waste that does not meet specifications for the 331-C Storage Unit (i.e., Chapter 1.0, listing, restricted from storage at the 331-C Storage Unit).

QA/QC Objectives

The objective of the QA/QC program is to control and characterize any errors associated with the collected data. Quality-assurance activities, such as the use of standard methods for locating and collecting samples, are intended to limit the introduction of error. Quality-control activities, such as the collection of duplicate samples and the inclusion of blanks in sample sets, are intended to provide the information required to characterize any errors in the data. Other QC activities, such as planning the QC program and auditing ongoing and completed activities, verify that the specified methods are followed and that the QA information needed for characterizing error is obtained.

- Field inspections–performed and documented by 331-C Storage Unit staff or designee, depending on the activity. The inspections primarily are visual examinations but might include measurements of materials and equipment used, techniques employed, and the final products. The purpose of these inspections is to verify that a specific guideline, specification, or procedure for the activity is completed successfully.
- Field-testing–performed onsite by 331-C Storage Unit staff (or designee) according to specified procedures or protocol identified by the manufacture's instructions supplied in the field test kits.
- Laboratory analyses–performed by onsite or offsite laboratories on samples of waste. The purpose of the laboratory analyses is to determine constituents or characteristics present and the concentration or level.

Sampling Objectives

The data-quality objectives (DQO) for the waste sampling and data analyses are as follows:

- Determine if waste samples are representative of the contents of the containers at the time the samples were taken.
- Determine if waste samples are representative of long-term operations affecting the 331-C Storage Unit.
- Determine if waste accepted for storage is within the Permit documentation limitations.

- Determine if waste accepted for storage meets the requirements of the 331-C Storage Unit waste-acceptance criteria.
- Determine if waste accepted for storage meets the information provided by the generator.

Data Collection/Sampling Objectives

The acquired data need to be scientifically sound, of known quality, and thoroughly documented. The DQOs for the data assessment will be used to determine compliance with national quality standards, which are as follows:

- Precision–The precision will be the agreement between the collected samples (duplicates) for the same parameters, at the same location, and from the same collection vessel.
- Representativeness–The representativeness will address the degree to which the data accurately and precisely represent a real characterization of the population, parameter variation at a sampling point, sampling conditions, and the environmental condition at the time of sampling. The issue of representativeness will be addressed for the following points:
- Based on the generating process, the waste stream, and its volume, an adequate number of sampling locations are selected.

The representativeness of selected media has been defined accurately

- The sampling and analytical methodologies are appropriate.
- The environmental conditions at the time of sampling are documented.
- Completeness–The completeness will be defined as the capability of the sampling and analytical methodologies to measure the contaminants present in the waste accurately.
- Comparability–The comparability of the data generated will be defined as the data that are gathered using standardized sampling methods, standardized analyses methods, and quality-controlled data-reduction and validation methods.

Analytical Objectives

Analytical data will be communicated clearly and documented to verify that laboratory data-quality objects are achieved.

Field Quality Assurance and Quality Control

Internal QA/QC checks will be performed by submitting QA and QC samples to the analytical laboratory. The number of field QA samples will be approximately 5 percent of the total number of field samples taken. The 5-percent criterion commonly is accepted for a minimum number of QA/QC samples. The types and frequency of collection for field QA samples are as follows:

- Field Blanks–A sample of analyte-free media taken from the laboratory to the sampling site and returned to the laboratory unopened. Field blanks are prepared and preserved using sample containers from the same lot as the other samples collected that day. A sample blank is used to document contamination attributable to shipping and field-handling procedures. This type of blank is useful in documenting contamination of volatile organics samples.
- Field Duplicates–defined as independent samples collected in such a manner that the samples are equally representative of the variables of interest at a given point in space and time. The laboratory will use the field duplicate as laboratory duplicate and/or matrix spikes. Thus, for the duplicate sample, there will be the normal sample analysis, the field duplicate, and the laboratory duplicates (inorganic analysis). Duplicate samples will provide an estimate of sampling precision.

Laboratory Quality Assurance and Quality Control

All analytical work, whether performed by independent laboratories, is defined and controlled by a Statement of Work, prepared in accordance with administrative procedures. The daily quality of analytical data generated in the analytical laboratories will be controlled by the implementation of an analytical laboratory QA plan. At a minimum, the plan will document the following:

- sample custody and management practices
- requirements for sample preparation and analytical procedures
- instrument maintenance and calibration requirements
- internal QA/QC measures, including the use of method blanks
- required sample preservation protocols
- analysis capabilities.

The types of internal quality-control checks are as follows:

- Method Blanks–Method blanks usually consist of laboratory reagent-grade water treated in the same manner as the sample (i.e., digested, extracted, distilled) that is analyzed and reported as a standard sample would be reported.
- Method Blank Spike–A method blank spike is a sample of laboratory reagent-grade water fortified (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample batch.
- Laboratory Control Sample–A QC sample introduced into a process to monitor the performance of the system.
- Matrix Spikes–An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. Matrix spikes will be performed on 5 percent of the samples (1 in 20) or one per batch of samples.
- Laboratory Duplicate Samples–Duplicate samples are obtained by splitting a field sample into two separate aliquots and performing two separate analyses on the aliquots. The analyses of laboratory duplicates monitor the precision of the analytical method for the sample matrix; however, the analyses might be affected by nonhomogeneity of the sample, in particular, by nonaqueous samples. Duplicates are performed only in association with selected protocols. Duplicates are performed only in association with selected protocols. Laboratory duplicates are performed on 5 percent of the samples (1 in 20) or one per batch of samples. If the precision value exceeds the control limit, then the sample set must be reanalyzed for the parameter in question.
- Known QC Check Sample–This is a reference QC sample as denoted by SW-846 of known concentration, obtained from the EPA, the National Institute of Standards and Technology, or an EPA-approved commercial source. This QC sample is taken to check the accuracy of an analytical procedure. The QC sample is particularly applicable when a minor revision or adjustment has been made to an analytical procedure or instrument. The results of a QC-check standard analysis are compared with the true values, and the percent recovery of the check standard is calculated.

PNNL Analytical Chemistry Laboratory QA/QC

PNNL's analytical chemistry laboratory may need to be used to analyze samples of potentially radioactive dangerous waste. It has a rigorous QA plan that verifies that data produced are defensible, scientifically valid, and of known precision and accuracy, and meets the requirements of its clients.

Offsite Laboratory QA/QC

When it is necessary to send samples to an independent laboratory, contracts are not awarded until a pre-award evaluation of the prospective laboratory has been performed. The pre-award evaluation process

involves the submittal of its QA plan to PNNL QA staff and the unit-operating supervisor. It also may involve a site visit by QA personnel and a technical expert, or may consist of a review of the prospective laboratories' QA/QC documents and records of surveillances/inspections, audits, non-conformances, and corrective actions maintained by PNNL or other Hanford Facility contractors.

Recordkeeping

Records associated with the waste-analysis plan and waste-verification program are maintained by the waste-management organization. A copy of the Disposal Request for each waste stream accepted at the 331-C Storage Unit is maintained as part of the operating record. Generators maintain their sampling and analysis records. The waste-analysis plan will be revised whenever regulation changes affect the waste-analysis plan.

Staff of the 331-C Storage Unit has a goal of continuous improvement by verifying that all analytical data produced are of known accuracy and precision, exceed all industry standards, and are scientifically valid. Using the above practices and following the appropriate 331-C Storage Unit operating procedures, staff can monitor and verify that progress is being made in the quality of the data produced.

3.4.4 Health and Safety Protocols

During all sampling activities, precautions will be taken to verify that waste containers do not expel gases and/or pressurized liquids. All personnel will be properly trained in safety and handling techniques.

3.5 SELECTING A LABORATORY, AND LABORATORY TESTING AND ANALYTICAL METHODS

3.5.1 Selecting a Laboratory

Laboratory selection is limited. Preference will be given to any PNNL facility or other laboratories on the Hanford Facility that exhibit demonstrated experience and capabilities in three major areas:

- comprehensive written QA/QC program based on DOE-RL requirements specifically for that laboratory
- audited for effective implementation of QA/QC program
- participate in performance-evaluation samples to demonstrate analytical proficiency.

All laboratories (onsite or offsite) are required to have the following QA/QC documentation:

- Daily analytical data generated in the contracted analytical laboratories are controlled by the implementation of an analytical laboratory QA plan.
- Before commencement of the contract for analytical work, the laboratory will have its QA plan available for review. At a minimum, the QA plan will document the following:
- sample custody and management practices
- requirements for sample preparation and analytical procedures
- instrument maintenance and calibration requirements
- internal QA/QC measures, including the use of method blanks
- required sample preservation protocols

- analysis capabilities.

3.5.2 Selecting Testing and Analytical Methods

PNNL waste generators collect information through process knowledge and/or sampling and analysis to provide the information needed to fill out a Disposal Request form and to determine compatibility, safety, and operating information. As needed, 331-C Storage Unit staff also will conduct analyses to determine completeness of information and if the waste meets the acceptance criteria for disposal, treatment, or storage at one of the Hanford Facility-permitted treatment/storage/disposal areas or that of one of the offsite TSD facilities. Testing and analytical methods will depend on the type of analysis sought and the reason for needing the information.

Chemists and/or appropriate personnel working under approved QA guidelines perform all testing. Analytical methods will be selected from those that are described in Section 3.3.1.

3.6 SELECTING WASTE RE-EVALUATION FREQUENCIES

Some analysis will be needed to verify that waste streams received by the 331-C Storage Unit conform to the information on the generator provided Waste Disposal Request and or the waste analysis sheet supplied by the generator. If discrepancies are found between information on the Disposal Request, hazardous-waste manifest, shipping papers, waste- analysis documentation, and verification analysis, then the discrepancy will be resolved by:

- returning waste to the generator, or sample and analyze the materials in accordance with WAC 173-303-110; and/or
- reassessing and re-designating the waste, repackaging and labeling as necessary, or return to the generator.

Periodic re-evaluation provides verification that the results from the initial verification are still valid. Periodic re-evaluation also checks for changes in the waste stream.

Exceptions to physical screening for verification are:

Analysis and characterization, as required by WAC 173-303-300(2), are performed on each waste before acceptance at the 331-C Storage Unit to determine waste designation and characteristics. The characterization of the waste, based on this information, is reviewed each time a waste is accepted. The generator must update the information when the waste stream changes or if the following occurs.

- The 331-C Storage Unit personnel have reason to suspect a change in the waste, based on inconsistencies in packaging, labeling, or visual inspection of the waste.
- The information submitted previously does not match the characteristics of the waste submitted.

Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste that is stored at the 331-C Storage Unit. The following are instances where sampling and laboratory analysis are required:

- inadequate information on PNNL-generated waste
- waste streams generated onsite will be verified at 5 percent of each waste stream
- inadequate information before waste was shipped or discrepancy discovered

- waste streams received from offsite generators will be verified at 10 percent of each waste stream applied per generator, per shipment
- identification and characterization for unknown waste and spills.

3.7 SPECIAL PROCEDURAL REQUIREMENTS

3.7.1 Procedures for Receiving Waste From off-site Generators

Most of the waste stored at the 331-C Storage Unit is generated on the Hanford Site and/or by PNNL research programs within the 300 Area. Additional requirements for waste generated outside the 300 Area include proper manifesting (if appropriate) to the 331-C Storage Unit and proper packaging for transport over public roadways. Although PNNL waste generated outside of the 300 Area is considered to be generated offsite since it may be transported to the 331-C Storage Unit on roads accessible to the public, it is under the same administrative controls as wastes that are generated onsite (i.e., in the 300 Area).

The generator is responsible for identifying waste composition accurately, and PNNL waste operations will arrange for the transport of the waste. The 331-C Storage Unit maintains a copy of any pertinent operating record in accordance with WAC 173-303 and the timeframes described in DOE/RL-91-28, Chapter 12, Table 12.1. The waste-tracking methods are as follows.

- **Inspection of Shipping Papers/Documentation**–The necessary shipment papers for the entire shipment are verified (i.e., signatures are dated, all waste containers included in the shipment are accounted for and correctly indicated on the shipment documentation, there is consistency throughout the different shipment documentation, and the documentation matches the labels on the containers).
- **Inspection of Waste Containers**–The condition of waste containers is checked to verify that the containers are in good condition (i.e., free of holes and punctures).
- **Inspection of Container Labeling**–Shipment documentation is used to verify that the containers are labeled with the appropriate "Hazardous/Dangerous Waste" labeling and associated markings according to the contents of the waste container.
- **Acceptance of Waste Containers**–The 331-C Storage Unit personnel signs the shipment documents and retains a copy.

If shipment will be received from or destined offsite, then a uniform hazardous waste manifest will be prepared identifying the 331-C Storage Unit as the receiving unit (Hanford Facility RCRA Permit Condition II.P). The 331-C Storage Unit operations staff will sign and date the manifest to certify that the dangerous waste covered by the manifest was received. The transporter will be given at least one copy of the signed manifest. A copy of the manifest will be returned to the generator within 30 days of receipt at the 331-C Storage Unit. A copy of the manifest also will be retained in the 331-C Storage Unit operating record.

For onsite waste transfers subject to the Hanford Facility RCRA Permit Condition II.Q.1, documentation meeting that requirement will be prepared and will accompany the shipment. The documentation will be maintained in the Operating Record. Onsite transfers traveling on public or private rights-of-way within or along the border of contiguous Hanford Site property may also be tracked using an alternate tracking system as allowed by Hanford Facility RCRA Permit Condition II.P.2.

Response to Significant Discrepancies

The primary concern during acceptance of containers for storage is improper packaging or manifest discrepancies. Containers with such discrepancies are not accepted at the 331-C Storage Unit until the discrepancy has been resolved. Depending on the nature of the condition, such discrepancies can be resolved using one or more of the following alternatives.

- Incorrect or incomplete entries on the uniform hazardous waste manifest can be corrected or completed with concurrence of the onsite generator or offsite generator. Corrections are made by drawing a single line through the incorrect entry. Corrected entries are initialed and dated by the individual making the correction.
- The waste packages can be held and the onsite generator or offsite waste generator requested to provide written instructions for use in correcting the condition before the waste is accepted.
- Waste packages can be returned as unacceptable.
- If a noncompliant dangerous waste package is received from an offsite waste generator, the waste package is non-returnable because of condition, packaging, etc., and if an agreement cannot be reached among, the involved parties to resolve the noncompliant condition, then the issue will be referred to DOE-RL and Ecology for resolution. Ecology will be notified in writing if a discrepancy is not resolved within 15 days after receiving a noncompliant shipment. Pending resolution, such waste packages, although not accepted, might be placed in the 331-C Storage Unit. The package(s) will be segregated from other waste, and an entry will be made into the 331-C Storage Unit logbook describing the actions that were taken to store the packages in a safe manor until a resolution has been reached.

Activation of Contingency Plan for Damaged Shipment

If waste shipments arrive at the 331-C Storage Unit in a condition that presents a hazard to public health or the environment, the Building Emergency Procedure is implemented as described in Chapter 7.0 for the 331-C Storage Unit.

3.7.2 Procedures for Ignitable, Reactive, and Incompatible Wastes

Ignitable, reactive, and incompatible wastes are stored in compliance with Uniform Fire Code Division II regulations for Container and Portable Tank Storage Inside Buildings (International Conference of Building Officials 1988). Containers of ignitable, reactive, and incompatible wastes are stored in individual flammable material storage cabinets within the storage cells or in a flammable cabinet in the bay area.

Chapter 6 describes precautions used at 331-C Storage Unit so that incompatible wastes are not stored together. Chemical wastes stored in 331-C Storage Unit are separated by chemical makeup and hazard class and stored in areas having appropriate secondary containment, as described in Chapter 4.

As shown in Chapter 4, each storage area has individual storage configurations; secondary containment structures are provided to verify that incompatible materials will not commingle if spilled. Further segregation is provided by chemical storage cabinets located throughout the unit in various areas as shown in Chapter 4. Cabinet types are noted in those figures, and capacities are described in Table 4-1. Incompatible wastes are never placed in the same container or in unwashed containers that previously held incompatible waste.

Compliance with WAC 173-303-395(1)(b) is assured by utilizing this system and the procedure for handling ignitable or reactive waste and mixing of incompatible waste, as described in Chapter 6.

3.7.3 Procedures to Ensure Compliance with LDR Requirements

LDR Waste-Analysis Requirements

The *Hazardous and Solid Waste Amendments of 1984* prohibit the land disposal of certain types of wastes that are subject to RCRA. Most of the waste types stored at the 331-C Storage Unit falls within the purview of these land-disposal restrictions (LDRs). Information presented below describes how generators and 331-C Storage Unit personnel characterize, document, and certify waste subject to LDR requirements.

Waste must be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with Appendix II of 40 CFR 261, as amended, in order to provide sufficient information for proper management and for decisions regarding LDR pursuant to 40 CFR 268.

Waste Characterization

Before being received at the 331-C Storage Unit, the RCRA waste characteristics, the level of toxicity characteristics, and the presence of listed wastes are determined during the physical and chemical analyses process. This information allows waste-management personnel to make all federal and applicable state LDR determinations accurately and complete appropriate notifications and certifications.

Sampling and Analytical Procedures

The LDR characterization and analysis is generally performed as part of the waste-characterization and analysis process. If waste is sampled and analyzed for LDR characterization, then only EPA or equivalent methods are used to provide sufficient information for proper management and for decisions regarding LDRs pursuant to 40 CFR 268.

Frequency of Analysis

Before acceptance and during the waste-characterization and analysis process, all LDR characterizations and designations are made. The characterization and analysis process is performed when a Disposal Request is submitted for waste pick-up, unless there is insufficient data, or if the waste stream has changed. Instances where sampling and laboratory analysis may be required to determine accurate LDR determinations include the following:

- when waste-management personnel have reason to suspect a change in the waste based on inconsistencies on the Disposal Request, packaging, or labeling of the waste
- when the information submitted previously by a generator does not match the characteristics of the waste that was submitted
- when the offsite TSD facility rejects the waste because the fingerprint samples are inconsistent with the waste profile provided by the 331-C Storage Unit that was established using generator information.

Dangerous waste types listed in Table 3-1 are sampled as needed on an individual container or batch basis before they are collected from the point of generation or prior to shipment offsite. After the dangerous constituents have been characterized, these waste streams will not be analyzed again until process or raw material changes occur.

Documentation and Certification

The 331-C Storage Unit has and will continue to receive and store LDR waste. Because 331-C Storage Unit personnel determine designations and characterization, including LDR determinations, qualified staff for PNNL-generated waste prepare all notifications and certifications, as required by 40 CFR 268. The 331-C Storage Unit staff collects from the generator(s) the information pursuant to 40 CFR 268 regarding

LDR waste. The notifications and certifications are submitted to onsite and offsite TSD units during the waste-shipment process. Additionally, any necessary LDR variances are prepared and submitted by PNNL qualified staff.

The 331-C Storage Unit staff requires applicable LDR information/notifications from non-PNNL generators.

Where an LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268, Subpart D, or exceeds the prohibition levels set forth in 40 CFR 268.32 or Section 3004(d) of RCRA, the 331-C Storage Unit provides to the onsite and offsite TSD a written notice that includes the following information:

- EPA hazardous-waste number
- the corresponding treatment standards and all applicable prohibitions set forth in WAC 173-303, 40 CFR 268.32, or RCRA Section 3004(d)
- the manifest number associated with the waste
- all available waste-characterization data
- identification of underlying hazardous constituents.

In instances where 331-C Storage Unit staff determines that a restricted waste is being managed that can be land-disposed without further treatment, 331-C Storage Unit staff submits a written notice and certification to the onsite or offsite TSD where the waste is being shipped, stating that the waste meets applicable treatment standards set forth in WAC 173-303-140 (40 CFR 268, Subpart D), and the applicable prohibition levels set forth in 40 CFR 268.32 or RCRA Section 3004(d). The notice includes the following information:

- EPA hazardous-waste number
- corresponding treatment standards and applicable prohibitions
- waste-tracking number associated with the waste
- all available waste-characterization data
- identification of underlying hazardous constituents.

The certification accompanying any of the notices previously described is signed by an authorized representative of the generator and states the following:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

Copies of all notices and certifications described are retained at the TSD unit for at least 5 years from the date that the waste was last sent to an onsite or offsite TSD unit. After that time, the notices and certifications are sent to Records Storage.

3.8 MANIFEST SYSTEM

The Hanford Site has one EPA/state identification number, as required by WAC 173-303-060, and all TSD units on the Hanford Site (such as the 331-C Storage Unit) are considered part of one dangerous waste facility. Therefore, onsite shipments of dangerous waste are not subject to the manifesting requirements specified in WAC 173-303-370 and -180. The 331-C Storage Unit has an onsite waste tracking system akin to a manifest system, which is voluntarily used for transporting waste on the Hanford Facility.

A uniform hazardous waste manifest is used for all off-site shipments of dangerous waste received at the 331-C Storage Unit, as well as for all off-site shipments of dangerous waste from the 331-C Storage Unit. In addition to the uniform hazardous waste manifest, wastes subject to land disposal restrictions that are shipped from the 331-C Storage Unit to off-site treatment, storage, or disposal facilities are accompanied by the applicable notifications and certifications required under 40 CFR 268.

The following sections provide information on receiving shipments, response to manifest discrepancies, and provisions for nonacceptance of shipments.

3.8.1 Procedures for Receiving Shipments

The following are procedures used prior to transport of wastes to the 331-C Storage Unit. First, the generator must submit a chemical disposal/recycle request form to the waste management organization. This request form is then reviewed and either approved or rejected. Typical causes of rejection include missing or insufficient information in any of the data fields or lack of specific information on waste composition. Upon approval, the waste management organization reviews the form to determine the dangerous waste designation, waste compatibility class for storage, and containerization and labeling requirements.

Waste Management personnel verify the information contained on the request form, such as number, sizes, and types of containers, location of waste, etc., check for proper containerization of waste, and then inspect the waste at the generating unit. If discrepancies are noted during the inspection, Waste Management personnel will not pick up the waste. Typical discrepancies include waste not as described on request form or lack of supporting data to verify waste characteristics. In such cases, deficiencies will be explained to the generating unit responsible person, who will then be responsible for correcting them.

If the waste is found to be acceptable for transport, Waste Management staff will check to verify that required labels are in place and transport (or arrange for transport of) the waste to the 331-C Storage Unit. If transport will be over public roadways or highways, a uniform hazardous waste manifest will be prepared identifying PNNL as the transporter and the 331-C Storage Unit as the receiving TSD unit. Alternate tracking systems may be used in certain cases as allowed by Hanford Facility RCRA Permit Condition II.P.2. A copy of all such manifests or alternate tracking documents is returned to the generating unit within 30 days of receipt at the 331-C Storage Unit. A copy of the manifest or alternate document is also retained at the 331-C Storage Unit.

3.8.2 Response to Significant Discrepancies

Waste shipments received at the 331-C Storage Unit containing manifest discrepancies are not accepted unless the discrepancy or discrepancies can be resolved with the generating unit at the time the shipment arrives. Manifest discrepancies requiring such resolution include:

- Variations exceeding 10 percent in weight for bulk shipments such as tank trucks or tank cars (generally not applicable to 331-C Storage Unit since most shipments are in drums or other containers);
- Any inaccuracy in piece counts in containerized shipments (underage or overage);
- Type mismatches (i.e., the waste is not as described on the request form; obvious inaccuracies such as waste acid substituted for waste solvent).

Manifest information will also be considered incorrect if the written description of wastes does not agree with visual observations, or if observed weights or volumes differ by more than 10 percent from those described on the manifest.

If a discrepancy is noted, the generating unit will be contacted immediately. The waste will not be accepted for storage until the discrepancy is resolved. The generating unit will be asked to identify the source of the discrepancy (e.g., error in estimating volume or weight, incorrect identification of waste,

etc.). Once the cause of the discrepancy is identified, and the generating unit and the waste management organization have concurred as to resolution of the discrepancy, the manifest will be corrected. Corrections will be made by drawing a single line through the incorrect entry and entering the correct information. Corrected entries will be initialed and dated by the individual making the correction. Once the manifest has been corrected, the discrepancy will be considered resolved.

Certain manifest discrepancies may be discovered after receipt, such as analytical data indicating incorrect designation, which may result in incorrect naming of the shipment on the manifest. Such discrepancies will be managed as noted above; if, however, the discrepancy cannot be resolved within 15 days of receipt of the shipment, the 331-C Storage Unit will file the report required by WAC 173-303-370(4)(b) as described in Chapter 12.0, Section 12.4.1.1.1.

3.8.3 Provisions for Nonacceptance of Shipment

Provisions for nonacceptance of shipments are discussed in the following sections.

3.8.3.1 Nonacceptance of Undamaged Shipment

All wastes are inspected by staff from the waste management organization prior to shipment and are transported to the 331-C Storage Unit by waste management organization staff. This procedure is designed to prevent receipt of nonacceptable wastes. Waste management organization staff will refuse to accept or transport wastes, which are nonacceptable at the 331-C Storage Unit.

3.8.3.2 Activation of BEP/Contingency Plan for Damaged Shipment

All wastes are inspected by staff from the waste management organization prior to shipment and are primarily transported to the 331-C Storage Unit by waste management organization staff. Damaged containers will not be accepted from the generator and will not be transported. The only opportunity for receipt of damaged containers, therefore, would be if containers were damaged during transportation. If a shipment of waste is damaged during transportation, and arrives in a condition that presents a hazard to public health or to the environment, the facility BEP/contingency plan will be implemented as described in Chapter 7.0.

3.8.4 Unmanifested Waste

Waste generated within the Hanford Site is not transported over public highways and is not subject to manifest requirements under WAC 173-303. Such waste may be received at the 331-C Storage Unit without a manifest. However, a completed and approved disposal request form must accompany all wastes (including unmanifested waste).

If transport is by public roadways or highways, a manifest or alternate tracking system (if appropriate per Hanford Facility RCRA Permit Condition II.P.2) must be used. Shipments requiring a manifest that do not have one, will either be rejected or at the sole discretion of the unit operator the unit will accept the waste and file an unmanifested waste report as described in WAC 173-303-390(1) and detailed in Chapter 12.0.

1 Table 3.1. Summary of Test Parameters, Rationales, and Methods

Parameter[a]	Method[b]	Rationale for Selection
Physical Screening		
Visual inspection	Field method–observe phases, presence of solids in waste	Confirm that waste matches that described on waste acceptance documentation; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Chemical Screening		
Water miscibility/separable organics [c]	Water mix screen ASTM Method D5232-92	Confirm that waste matches that described on waste acceptance documentation; identify separable organics; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Oxidizer	Oxidizer Screen	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
pH	pH screen SW-846 Method 9041	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Cyanides	Cyanide screen	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Sulfides	Sulfide screen	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Flashpoint	Flashpoint measurement instrument	Confirm that waste matches that described on waste acceptance documentation
Halogenated/Volatile Organic Compounds	Photoionizer or Flame Ionizer, or Clor-D-Tect Kits(c)	Confirm that waste matches that described on waste acceptance documentation
Pre-Shipment Review		
Mercury (total)	Generator knowledge or SW-846 Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria.
Toxicity characteristic organic compounds	Generator knowledge or SW-846 Methods 1311 and 8260 (volatile organic compounds) and 8270 (semivolatile organic compounds)	Identify waste not identified in Chapter 1.0, Part A
Polycyclic aromatic hydrocarbons	Generator knowledge or SW-846 Method 8270 or 8100	Identify waste not identified in Chapter 1.0, Part A, (for waste with >1% solids and for which WP03 could apply)

(a) Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.

(b) Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed.

(c) These tests will not be performed on materials known to be organic peroxides, ether, and/or water reactive compounds.

2

Chapter 4.0 Process Information

Figures

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4.0 PROCESS INFORMATION

4.1 CONTAINERS

The following sections describe the types of containers stored at the 331-C Storage Unit.

4.1.1 Description of Containers

Containers of hazardous waste entering the 331-C Storage Unit are inspected before being accepted for storage. Generating units are responsible for placing the materials in adequate containers. Waste not in its original container must be placed in containers that are compatible with the materials to be stored.

Containers in poor condition or inadequate for storage are not accepted at the unit. If transport is by unit personnel, such containers are not accepted for transport. Refer to Section 6.4.1 for inspection before transport performed by unit personnel. "Container in poor condition or inadequate for storage" means a container that is not intact or undamaged and not securely sealed to prevent leakage during storage, transport and ultimate offsite disposal. Examples of acceptable packaging include laboratory reagent bottles, DOT containers, spray cans, sealed ampoules with septums, paint cans, leaking containers that have been overpacked, etc. Unit operations personnel have the authority to determine whether a container is in poor condition or inadequate for storage, using the criteria of WAC 173-303-190 and professional judgment whether the packaging may leak during handling, storage and/or disposal.

All flammable liquid waste is stored in compatible DOT-specified shipping containers and/or in Underwriter's Laboratory (UL)-listed and Factory Mutual (FM)-approved flammable storage cabinets. Solid chemicals are stored on shelving in specifically designated areas based on the DOT hazard classification.

All containers utilized for offsite transport of dangerous waste at the unit are selected and shall comply with all applicable criteria found in WAC 173-303-190.

4.1.2 Container Management Practices

Management practices for containers of dangerous waste are in place at the 331-C Storage Unit to verify the safe receipt, handling, preparation for transport, and transportation of waste. These practices and procedures are summarized below.

Inspection of Containers. A system of daily, weekly, monthly, and yearly inspections is in place to verify container integrity, check for proper storage location, prevent capacity overrun, etc. These inspection activities are detailed in Chapter 6.0, Section 6.2.

Container Handling. All unit staff is instructed in proper container handling safeguards as part of their training. Containers are always kept closed except when adding or removing waste, in accordance with WAC 173-303-630(5)(a).

Containers are not opened, handled or stored in a manner that would cause the container to leak or rupture. Small containers (five gallons or less capacity) are stored on shelving or in approved flammable liquid storage lockers (if appropriate). Containers over five gallons capacity are stored on the floor of the appropriate storage cell, in cabinets, or stored in the appropriate containment area on the bay floor. Unnecessary handling not required for redistribution or preparation for transport and disposal by either lab packing or bulking is minimized. For manual movement, hand trucks specifically designed for drum

handling are used. When using the forklift, a drum hoist is used or the drums are carried on pallets. Drums are never carried on the forks or "speared" by slipping the forks under the chime. When waste handling operations are conducted, at least two persons are present in the unit.

Lab Packing. One of the major functions of the 331-C Storage Unit is the preparation of lab packs for offsite recycling, treatment and/or disposal of small quantity lab waste generated by DOE-RL/PNNL activities.

Lab packs are prepared in compliance with WAC 173-303-161, 49 CFR 173.12, other applicable regulations, and requirements of the planned receiving facility (recycler, treatment facility, or disposal facility). Requirements affecting preparation of lab packs might include types of absorbent materials to be used (e.g., no vermiculite).

Lab packs are prepared in the bay area or in the storage cell containing the hazard class(es) to be placed in the lab pack.

Partial and completed lab packs are closed, labeled, and the contents list documented. Lab packs are stored in the cell from which the containers inside were drawn, or in the bay area if appropriate.

Unit personnel wear appropriate protective clothing while handling containers being placed in lab packs. At a minimum this includes lab coats or long sleeved shirt, long pants, safety glasses or other protective eyewear, and chemical resistant gloves. More stringent requirements, including use of respiratory protection, may be imposed if appropriate.

Bulking. In order to promote greater recycling or treatment of waste and reduce land disposal, some liquid wastes are "bulked" into larger containers, typically 30- or 55-gallon closed head drums. Bulking is the commingling of small containers of compatible waste into one container. Appropriate respiratory protection will be used when the bulking of flammable liquids or toxics is performed. Bulking of nonvolatile, low hazard waste such as saline solutions or ethylene glycol may be done within the containment areas of the appropriate storage cell or bay area.

Compatibility of waste to be bulked is determined using the information from generating unit designation information, process knowledge, laboratory analyses, and/or by compatibility determinations.

Glass containers emptied (as defined by WAC 173-303-160(2)) as a result of bulking activities are usually crushed onsite by an electric glass crusher, which mounts on a 55-gallon drum or managed as solid waste in accordance with WAC 173-303-160(3). If an emptied glass container held acutely hazardous waste, as defined by WAC 173-303-040(2), the container is rinsed at least three times with an appropriate cleaner or solvent before being destroyed. The rinsates are managed as dangerous waste.

Once bulking is complete, the bulk container is closed, labeled, and the contents list documented. Containers of bulked waste are stored in the cell from which the containers inside were drawn, or in Cell 7 if appropriate. If incompatible wastes are stored in Cell 7, they are kept in individual secondary containment systems if in bulk drum form.

Unit personnel wear appropriate protective clothing while bulking containerized liquid waste. At a minimum, this includes coveralls, or long sleeved shirt, long pants, disposable splash-resistant apron, eye protection, and chemical resistant gloves. More stringent requirements, including use of respiratory protection, may be imposed if appropriate.

4.1.3 Container Labeling

As required by WAC 173-303-630, all containers of dangerous waste are marked and/or labeled to describe the contents of the container and the major hazards of the waste. Containers are also marked with a unique identifying number assigned by the unit's computerized waste tracking system.

4.1.4 Containment Requirements for Storing Containers

4.1.4.1 Secondary Containment System Design

Several design features have been engineered into the construction of the 331-C Storage Unit as added safeguards for containment of dangerous waste spills or leaks. The following subsections comment briefly on each of the design features.

4.1.4.1.1 System Design

The facility is covered by a roof that is maintained to prevent intrusion of rainwater into areas where hazardous waste is stored.

The base of the facility consists of a 6-inch reinforced, poured concrete slab. All exposed surfaces were finished with a smooth troweled surface and painted with a chemical resistant epoxy based coating. All edges and corners were sealed with a bead of sealant.

The concrete floors in each bay storage cell are sealed and bermed using angle iron and have containment trenches at the entrances to these cells. These trenches are isolated from each other to prevent interaction, reactions, or offsite migration of spilled materials. This provides protection even during simultaneous spills.

The condition of the floor coating is inspected weekly per Chapter 6.0, and repairs are made as needed. Immediate repairs are indicated whenever the coating is observed to have been chipped, bubbled up, scraped, or otherwise damaged in a manner that would significantly impact the capability of the coating to contain spilled materials. Minor nicks and small chips resulting from normal operations will be repaired on a periodic basis.

The floors in Cell 7 are sealed and bermed using angle iron and have containment trenches at every exit to the area to prevent offsite migration of spilled material. Drums stored in this area are also stored on pallets to prevent contact with spilled material in the event of a release.

4.1.4.1.2 Structural Integrity of Base

The concrete was mixed in accordance with ASTM C94/C94M, and is capable of bearing the loads associated with normal container storage and movement.

4.1.4.1.3 Containment System Capacity

Secondary containment is provided for all dangerous waste stored at the 331-C Storage Unit. Storage limits for all chemicals are listed in Table 4.1 (1988 Uniform Building Code). All floors in the bay area have sumps that have no drains and are covered with grating to prevent safety hazards. The capacity of the two sumps at the entrances to the building is 168 gallons per trench, and the sumps to the individual storage cells have a capacity of 98 gallons per sump. In addition, all floors in the bay area are coated with an epoxy based coating as described in Section 4.1.4.1.1. Inspection of the containment system to

maintain integrity is described in Chapter 6.0. Individual secondary containment systems are configured as follows:

a. Acids and Oxidizers Cell. The acids and oxidizers cell (Cell 1) is located at the northwest corner of the 331-C Storage Unit bay area. The concrete floor in this storage cell is sealed and bermed using angle iron and has a containment trench at the entrance. This trench is isolated from the other trenches in order to prevent interaction, reactions, or offsite migration of spilled materials. This provides protection even during simultaneous spills. Six cabinets, open shelving, and a large-container storage area are provided within the cell to allow storage of various sizes of containers. The containment volume of the sump entering the cell is 98 gallons. A diagram of the cell is provided in Figure 4.1.

b. Poisons and Class 9 Cell. The poisons and Class 9 cell (Cell 2) is located just south of the acids and oxidizers cell along the west wall of the bay area. The concrete floor in this storage cell is sealed and bermed using angle iron and has a containment trench at the entrance. This trench is isolated from the other trenches in order to prevent interaction, reactions, or offsite migration of spilled materials. This provides protection even during simultaneous spills. The northeast corner of the cell is used for PCB storage for disposal complying with 40 CFR 761.65(b). The containment volume of the sump entering the cell is 98 gallons. A diagram of this cell is provided in Figure 4.2.

c. Alkaline, Washington State Criteria Waste, Organic Peroxides, and Non-Regulated Waste Cell. The alkaline, Washington State Criteria waste, and non-regulated waste cell (Cell 3) is located south of the poisons and Class 9 cell on the west wall of the bay area. The concrete floor in this storage cell is sealed and bermed using angle iron and has a containment trench at the entrance. This trench is isolated from the other trenches in order to prevent interaction, reactions, or offsite migration of spilled materials. This provides protection even during simultaneous spills. Four storage cabinets, three sets of open shelving, and one explosion proof refrigerator, are positioned in the cell to allow storage of various sizes of containers. The containment volume of the sump entering the cell is 98 gallons. A diagram of this cell is provided in Figure 4.3.

d. Flammable, Organic and Compressed Aerosols Cell. The flammable cell (Cell 4) is located south of the alkaline, Washington State Criteria waste, and non-regulated waste cell. The concrete floor in this storage cell is sealed and bermed using angle iron and has a containment trench at the entrance. This trench is isolated from the other trenches in order to prevent interaction, reactions, or offsite migration of spilled materials. This provides protection even during simultaneous spills. The containment volume of the sump entering the cell is 98 gallons. A diagram of this cell is provided in Figure 4.4.

Ignitable organic waste materials are stored in this cell that also exhibits the characteristics of corrosivity and toxicity as well as reactivity. Eight Factory Mutual-approved flammable liquid storage cabinets are utilized for storage of various classes of flammable liquids as defined by the Uniform Fire Code. The capacities of the various cabinets are shown in Table 4.1. The following cabinets also are used for storage in this cell: one for combustibles, one for aerosols, two for flammable solids, and one for overflow from one of the other cabinets.

Total ignitable Waste Storage capacity of the 331-C Storage Unit bay, including the organics cell, Ignitable drum storage area, and bay storage area is limited by the following UBC restrictions for Class B occupancy:

- Class 1A flammable liquids: 120 gallons
- Class 1B flammable liquids: 240 gallons
- Class 1C flammable liquids: 360 gallons

- Maximum Class 1A, 1B, and 1C at any one time: 480 gallons
- Maximum Class 1A, 1B and 1C stored in Cell 8 self contained storage module for flammable liquids is 240 gallons
- Class 2 combustible liquids: 480 gallons
- Class 3A combustible liquids: 1320 gallons
- Combustible fibers, loose: 100 cubic feet
- Combustible fibers, baled: 1000 cubic feet
- Flammable gases in any one cylinder: 3000 cubic feet
- Liquefied flammable gases: 60 gallons

e. Flammable Liquids Storage Module. The flammable liquid storage module is a self-contained storage module (Cell 8) that allows additional storage space for flammable waste. The flammable liquid storage module is located along the south wall and is connected to the buildings fire suppression system. The flammable liquid storage module has a 2-hour fire rated containment system so that according to the Uniform Fire Code, an unlimited capacity is allowed. However, the flammable waste storage capacity of the flammable liquid storage module is limited by the 240-gallon capacity of the module's secondary containment system. No more than 240 gallons of any combination of flammable liquid classes will be stored in the module. This flammable waste storage capacity is in addition to the flammable storage limits for the bay area. A diagram showing the module location in the bay area is included in Figure 4.5.

f. Ignitable Waste Drum Storage Area. An additional section of the bay area (Cell 8) has been dedicated with two flammable drum storage cabinets used to store drum quantities of ignitable waste before offsite shipment. The bay area is bordered on all sides by angle iron (3½ in. x 6 in.) bolted to the floor and sealed to provide secondary containment. To further enhance containment and to allow greater storage capacity, the drums stored in this area are stored in flammable liquid drum storage cabinets.

Maximum storage in these two cabinets is approximately four 55-gallon drums and twelve five-gallon drums. A diagram showing the two flammable storage cabinets in the bay area is included in Figure 4.5. Additional ignitable waste storage is provided for in Cell 4, the organics cell, and in the flammable liquids storage module. All of this ignitable waste storage is provided for utilizing flammable liquid storage cabinets for added safety.

g. Universal and Recycling Waste Storage Area. A section of the bay (Cell 6) has been dedicated to storage of drum quantities of universal and recycling waste before shipment. The area is approximately 20 ft. x 5 ft. in size dependent on the amounts in storage. All material in this area is stored in DOT approved containers and is stored on pallets to prevent contact with spilled waste in the event of an incident. A diagram of this area is included in Figure 4.5.

h. Bay Storage Area. The bay storage area is itself a secondary containment area for loading, unloading, and the storage of dangerous waste. All floors in the bay area are bordered on all sides by angle iron (3½ in. x 6 in.) bolted to the floor and sealed with an epoxy based coating to provide secondary containment. Sump locations are indicated in Figure 4.5.

Due to space limitations in the individual cells, and for ease of mechanical handling, the bay floor is typically used for storage of chemicals in drums.

The bay floor is also used to store lab packs and bulked waste containers before offsite shipment to permitted treatment, disposal, or recycling facilities. Generally, only corrosives, oxidizers, toxic organic solvent mixtures (typically halogenated solvents), antifreeze mixtures, contaminated water which is toxic

dangerous waste, nonliquid waste, Class 9, or state-only dangerous waste materials are stored in the bay storage area.

If incompatible wastes are stored in the bay area, they are kept in individual secondary containment systems (spill pallets, portable booms or other commercially available drum containment systems) if in bulk drum form. If the waste is in labpack form, it will meet WAC 173-303-161, *Overpacked containers (labpacks)*, requirements before being stored in the bay area. The DOT approved outer container serves as the secondary containment system for segregation in case of simultaneous accidental spillage.

The bay storage is governed by the building occupancy limits of Table 4.2, which includes the inventory of the individual storage cells previously described. In order to provide additional separation from spilled liquids and for ease of handling, all drums stored on the bay floor are stored on pallets. A diagram of the bay area is provided in Figure 4.5.

i. Explosives Storage Area. Due to Uniform Building Code restrictions, waste classified as explosive by DOT regulations are stored in a 3 ft. x 3 ft. x 3 ft. explosives magazine, with an 8 cubic foot interior, outside Cell 4. The magazine is constructed of steel and certified to have been fabricated per Institute of Makers of Explosives (IME) SLP22, type 2-day box requirements. No more than 1 pound of explosives is stored in the magazine at one time. The location of the magazine is indicated in Figure 4.5.

4.1.4.1.4 Control of Run-On

The 331-C Storage Unit was designed to eliminate the likelihood of on-site, or for that matter, off-site migration via run-on and run-off. The building and the covered area adjacent to the building have been constructed upon a foundation and the surrounding soil sloped away so that precipitation cannot cause either run-on or run-off problems.

4.1.4.2 Removal of Liquids from Containment System

Upon discovery of liquid accumulation in the containment resulting from a spill or other release, the Building Emergency Director (BED) must be contacted in accordance with the 331-C Storage Unit Building Emergency Procedure (BEP) Chapter 7.0. The BED may determine that the contingency plan should be implemented. If the incident is minor, and the BED approves, removal of the liquids will commence immediately following a safety evaluation. Appropriate protective clothing and respiratory protection will be worn during removal activities; a PNNL industrial hygienist may be contacted to determine appropriate personnel protection requirements and any other safety requirements that may be required, such as chemical testing or air monitoring. In addition, ventilation of the spill-impacted area may be performed if determined to be safe and if appropriate monitoring of the air discharge(s) is performed.

Spills are normally contained either within the storage cabinet, within the cell, or within a secondary containment trench or berm as described in Section 4.1.4.1.1. In any case, spilled material will be recovered to the extent possible by pumping recovered liquids with a pump made of non-reactive materials (either steel or PVC) to intact containers selected in accordance with the container criteria in WAC 173-303-190. Non-recoverable liquids will be absorbed with an appropriate absorbent (after appropriate chemical reaction to neutralize reactivity in the case of reactive waste, or neutralization in the case of corrosive materials); refer to Table 6.2 for a list of available materials for this purpose. The absorbent material will then be recovered and placed in a container selected in accordance with Section 4.1.1.1, using non-sparking shovels in the case of ignitable waste. The floor, cabinets and any other impacted containers may be cleaned with dry rags, soap and water, or a compatible solvent if necessary to remove external contamination. Contaminated rags and other cleanup material will be disposed of in an appropriate manner.

4.1.5 Demonstration that Containment Is Not Required Because Containers Do Not Contain Free Liquids, Wastes That Exhibit Ignitability or Reactivity, or Wastes Designated F020-F023, F026, or F027

This section is not applicable to the 331-C Storage Unit because the storage area is used to store containers both with and without free liquids. The 331-C Storage Unit does not meet the conditions for reduced requirements for storing only containers without free liquid; therefore, the facility is subject to the full requirements for containment.

4.1.6 Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste in Containers

The following sections provide information on the management of ignitable, reactive, and incompatible waste in containers. Additional information on this subject can be found in Chapter 6.0, Section 6.5.

4.1.6.1 Management of Certain Reactive Wastes in Containers

Wastes described in WAC 173-303-070(7)(vi), (vii), and/or (viii) (explosive type wastes) will be stored in the explosives magazine described in Section 4.1.4.1.3 above. This magazine meets the Uniform Fire Code requirements for storage of such materials.

4.1.6.2 Management of Ignitable or Reactive Waste in Containers

Ignitable and reactive wastes are stored in compliance with Uniform Fire Code Division II regulations for Container and Portable Tank Storage Inside Buildings (International Conference of Building Officials 1988). Containers of ignitable and reactive waste are stored in individual flammable storage cabinets within the storage cells.

4.1.6.3 Design of Areas to Manage Incompatible Wastes

Chapter 6.0, Section 6.5.2 describes guidelines used at the 331-C Storage Unit to determine the compatibility of dangerous waste so that incompatible wastes are not stored together. Chemical waste stored in the 331-C Storage Unit are separated by compatibility, chemical makeup, and hazard class and stored in areas having appropriate secondary containment, as described in Section 4.1.1.6.

As shown in Figures 4.1 through 4.5, each storage area has individual storage configurations; secondary containment structures are provided to verify that incompatible materials will not commingle if spilled. Further segregation is provided by chemical storage cabinets located throughout the facility in various areas as shown in Figures 4.1 through 4.5. Cabinet types are noted in those figures and capacities are described in Table 4.1. Incompatible wastes are never placed in the same container, or in unwashed containers that previously held incompatible waste.

Compliance with WAC 173-303-395(1)(b) is assured utilizing the reactivity groupings given in *A Method for Determining the Compatibility of Hazardous Waste* (EPA 1980). Using this system and following the guidelines for handling ignitable or reactive waste and mixing of incompatible waste, as described in Section 6.5.2, fulfills the requirements of WAC 173-303-395(1)(c).

4.2 TANK SYSTEMS

This section is not applicable to the 331-C Storage Unit because waste is not managed in tanks.

4.3 WASTE PILES

This section is not applicable to the 331-C Storage Unit because waste is not managed in waste piles.

4.4 SURFACE IMPOUNDMENTS

This section is not applicable to the 331-C Storage Unit because waste is not placed in surface impoundments.

4.5 INCINERATORS

This section is not applicable to the 331-C Storage Unit because waste is not incinerated.

4.6 LANDFILLS

This section is not applicable to the 331-C Storage Unit because waste is not placed in landfills.

4.7 LAND TREATMENT

This section is not applicable to the 331-C Storage Unit because waste is not treated in land treatment units.

4.8 AIR EMISSIONS CONTROL

4.8.1 Process Vents

This section is not applicable to the 331-C Storage Unit, as no equipment subject to WAC 173-303-690 (Subpart AA requirements) is located or utilized at the unit.

4.8.2 Equipment Leaks

This section is not applicable to the 331-C Storage Unit, as no equipment subject to WAC 173-303-691 (Subpart BB requirements) is located or utilized at the unit. Note that pumps or other equipment may contact hazardous waste with an organic concentration of at least ten percent by weight for less than 300 hours per calendar year. If so, the equipment will be identified as required by WAC 173-303-691(1)(f).

4.8.3 Tanks and Containers

4.8.3.1 Applicability of Subpart CC Standards

The requirements of WAC 173-303-692 (Subpart CC standards) apply to dangerous waste stored at the 331-C Storage Unit unless one or more of the exceptions given at WAC 173-303-692(1)(b) apply.

4.8.3.2 Tank Systems and Container Areas – Demonstrating Compliance

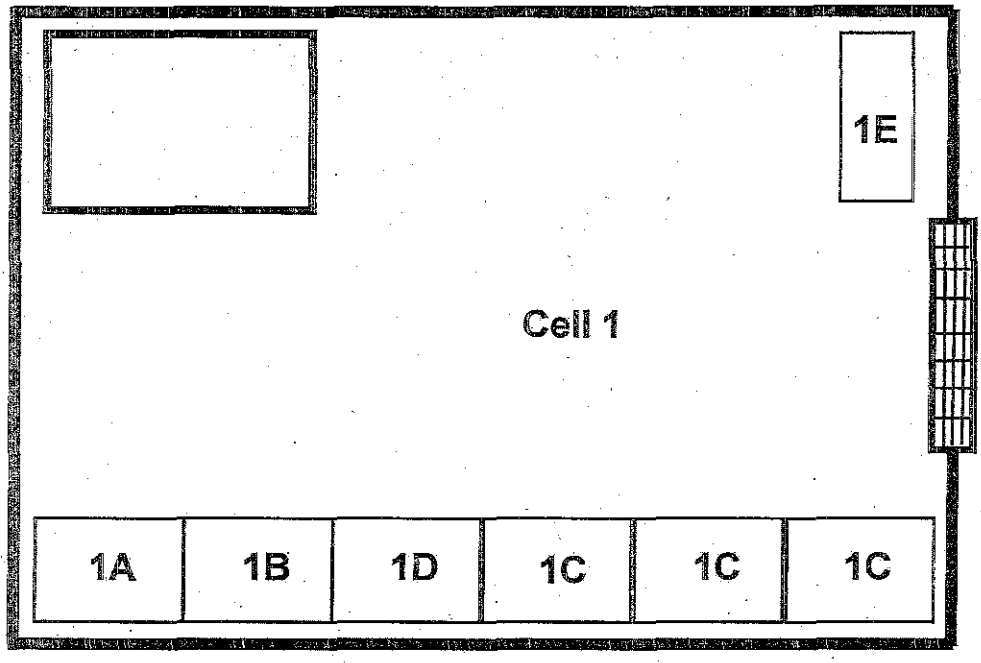
Compliance with the Subpart CC standards is maintained at the 331-C Storage Unit by utilizing DOT-specification containers for storage, when the container has a design capacity greater than 0.1 m^3 (26.4 gallons). Containers greater than 0.46 m^3 (121 gallons) are not typically utilized at 331-C, and if they are, they would be used only for materials with low vapor pressures. Hence Level 1 container standards are the only standards that must be met.

To meet the Level 1 standards, the following standards are observed:

- Opening hazardous waste containers only occurs when adding or removing waste, or for necessary inspection or sampling, after which the container is promptly re-closed.
- Inspection of the closure of hazardous waste containers is checked prior to loading for shipment to 331-C as part of the waste acceptance process (Section 3.2.2).
- Any waste container greater than 0.1 m^3 capacity stored longer than one year is re-inspected at least once every 12 months to check the container for deterioration or damage. Any deterioration or damage is documented and promptly repaired in accordance with 40 CFR 264.1086(c)(4)(iii).

Determination that containers with capacity greater than 0.46 m^3 (121 gallons) are not in "light material service" is provided through the acceptance criteria in the 331-C waste analysis plan (Section 3.2).

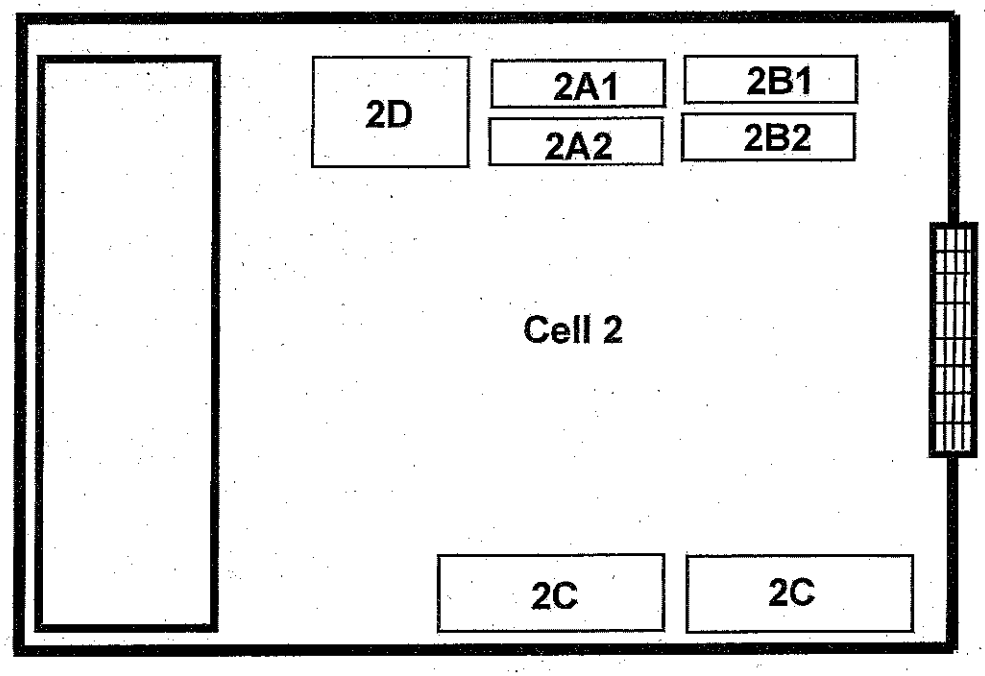
Figure 4.1. Acids and Oxidizers Cell



Legend

1A	Liquid Oxidizers (Medium Cabinet)
1B	Solid Oxidizers (Small Cabinet)
1C	Inorganic Acids (Medium Cabinet)
1D	Organic Acids (corrosive) (Small Cabinet)
1E	Mercury/Corrosive Solids (Small Shelf)
	Epoxy coated angle iron
	Collection Sump
	Drum and Carboy Storage Area

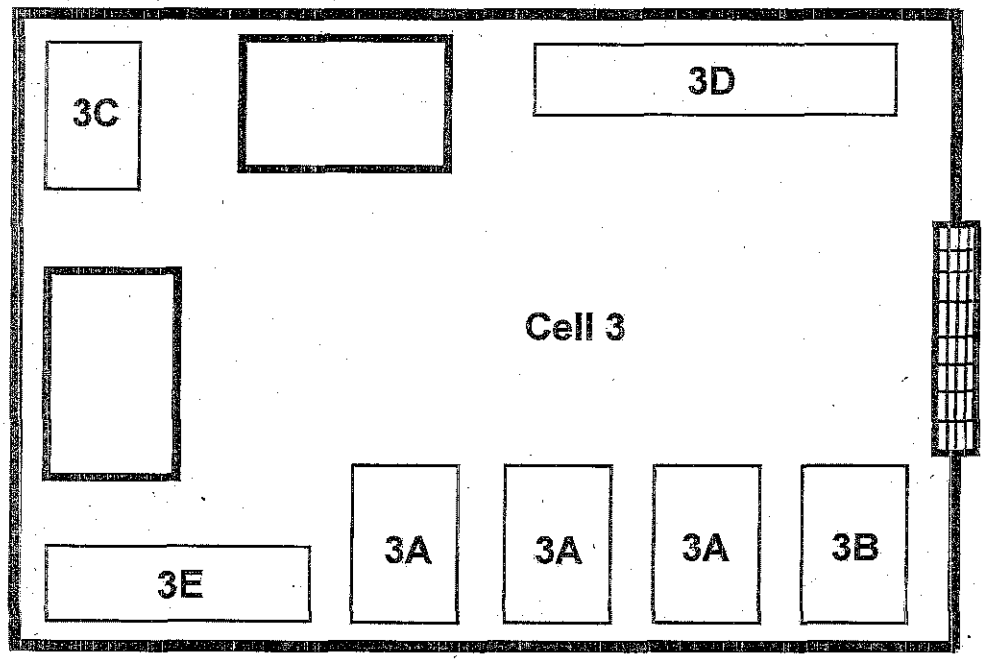
Figure 4.2. Poisons and Class 9 Cell



Legend

2A1	Poisons, Acidic (P.G.II and P.G.III) (Small Cabinet)
2A2	Poisons, Neutral/Basic (P.G.II and P.G.III) (Small Cabinet)
2B1	Poisons, Neutral/Basic (P.G.I) (Small Cabinet)
2B2	Poisons, Acidic (P.G.I) (Small Cabinet)
2C	Class 9 (nonreactive) (Large and Small Shelf)
2D	Class 9 (reactives) (Large Cabinet)
▮	Epoxy coated angle iron
▦	Collection Sump
▯	Drum and Carboy Storage Area

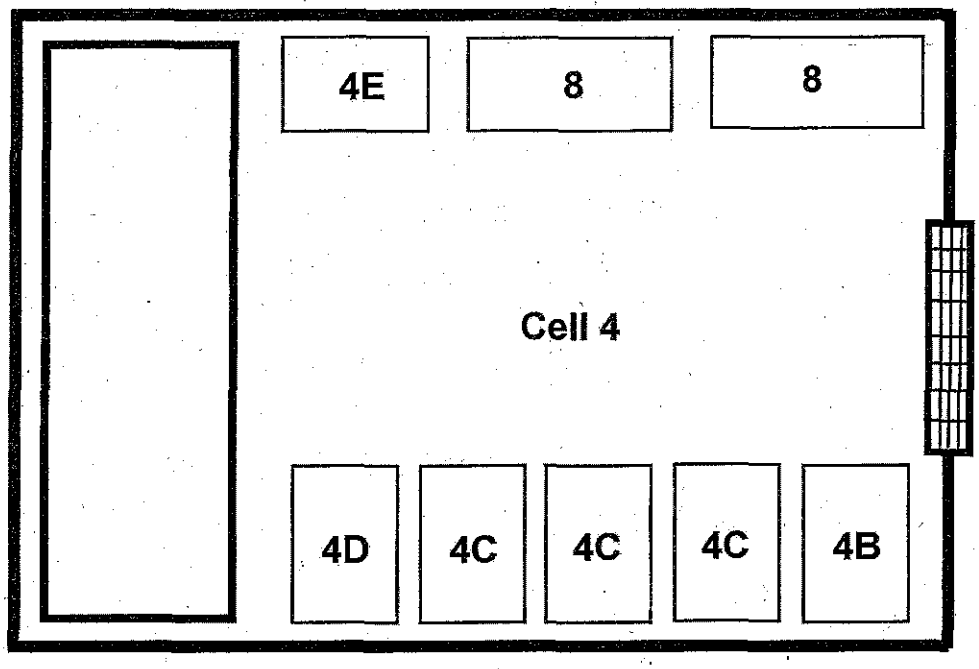
Figure 4.3. Alkaline, Washington State Criteria Waste, Organic Peroxides, and Non-Regulated Waste Cell



Legend

3A	Alkaline (liquids and solids) (Medium Cabinet)
3B	Alkaline/Oxidizers (Medium Cabinet)
3C	Organic Peroxides and temperature sensitive (refrigerator)
3D	Washington State Criteria Waste (Large Shelve)
3E	Non-Regulated Liquids/Solids (Small Shelf)
	Epoxy coated angle iron
	Collection Sump
	Drum and Carboy Storage Area

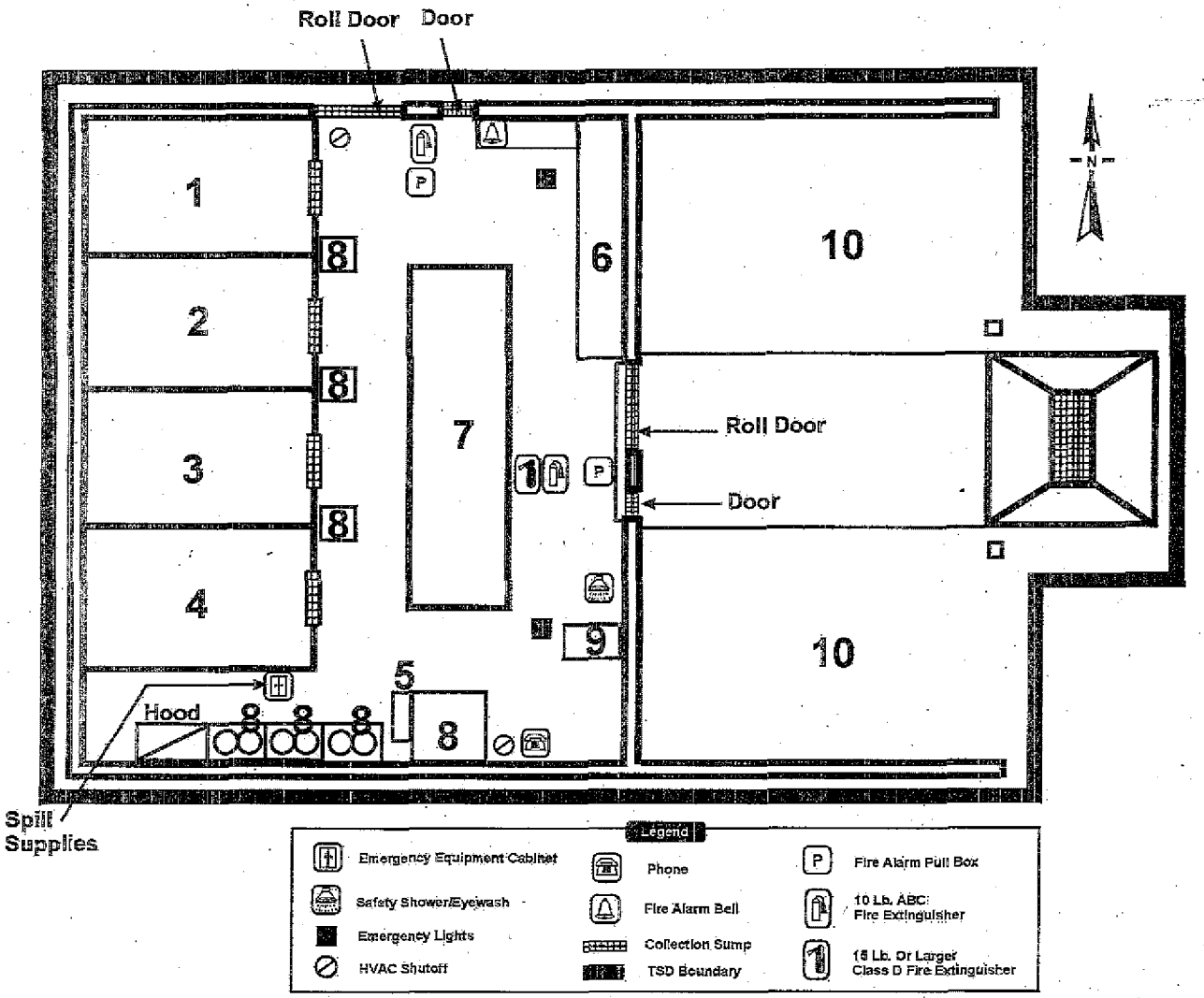
Figure 4.4. Flammable, Organic and Compressed Aerosols Cell



Legend

4B	Aerosols (Large Cabinet)
4C	Flammable Liquids (Large Cabinet)
4D	Flammable Solids (Dangerous When Wet) (Large Cabinet)
4E	Flammable Solids (with water Spontaneously Combustible) (Large Cabinet)
4F	Floating Cabinet (Large Cabinet)
8	Flammable Liquids (Large Cabinets)
	Epoxy coated angle iron
	Collection Sump
	Drum and Carboy Storage Area

Figure 4.5. Bay Storage Area



Legend

1. Acids, Oxidizers
2. Poisons, Class 9
3. Alkaline, WSDW, Organic Peroxides
4. Organics Flammable and Compressed Aerosols
5. Compressed gases
6. Universal/Recycling Storage Area
7. Class 9, WSDW, Non-flammable and compatible waste
8. Flammable Storage
9. Explosive Magazine
10. Outdoor Storage

1 **Table 4.1. Storage Devices Used at the 331-C Storage Unit**

Storage Device	Typical Use	Approximate External Dimensions (in.)	Approximate Capacity (gal/ft3.)
Small Cabinet	Storage of containers (5 gallons or less capacity)	43w x 18d x 65h	50 max
Medium Cabinet	Storage of containers (18.93 liter [5 gallons] or less capacity	31w x 31d x 65h	60 max
Large Cabinet	Storage of containers (5 gallons or less capacity)	34w x 34d x 65h	80 max
Small Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	34w x 34d x 65h	65 max
Large Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	59w x 34d x 65h	130 max
Small Shelving	Storage of containers (5 gallons or less capacity)	47w x 18d x 62h	65 max
Large Shelving	Storage of containers (5 gallons or less capacity)	72w x 18d x 62h	100 max
Flammable Storage Module	18.93 liter [5 gallons] to 208.18 liter [55 gallons] capacity	78w x 73d x 100h	240 max
Refrigerator/ Freezer	Storage of containers of organic peroxides and other temperature sensitive waste	34w x 29d x 67h	25 Cu.Ft.
Explosives Magazine	Storage of containers containing DOT classified explosives	36w x 36d x 36h	8 Cu.Ft.

1

Table 4.2. Building Occupancy limits.

TABLE NO.9-A—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS, LIQUIDS AND CHEMICALS REPRESENTING A PSYICAL HAZARD BASIC QUANTITIES PER CONTROL AREA[1]

When two units are given values within parentheses are in cubic feet (Cu.Ft.) or pounds (Lbs.)

CONDITION		STORAGE[2]			USE[2]–CLOSED SYSTEMS			USE[2]–OPEN SYSTEMS		
MATERIAL	CLASS	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)
1.1 Combustible liquid[3]	II	–	120[4 5]	–	–	120[4]	–	–	30[4]	–
	III-A	–	330[4 5]	–	–	330[4]	–	–	80[4]	–
	III-B	–	13,200[5 6]	–	–	13,200[6]	–	–	3,300[6]	–
1.2 Combustible dust lbs./1000 Cu.Ft.		1[7]	–	–	1[7]	–	–	1[7]	–	–
1.3 Combustible fiber			–	–		–	–		–	–
(loose)		(100)			(100)			(20)		
(baled)		(1,000)			(1,000)			(200)		
1.4 Cryogenic, flammable or oxidizing			45	–	–	45	–	–	10	–
2.1 Explosives		1[5 8 9]	(1)[5 8 9]	–	¼[8]	(¼)[8]	–	¼[8]	(¼)[8]	–
3.1 Flammable solid		125[4 5]	–	–	25[4]	–	–	25[4]	–	–
3.2 Flammable gas										–
(gaseous)		–	–	750[4 5]	–	–	750[4 5]	–	–	–
(liquefied)		–	15[4 5]	–	–	15[4 5]	–	–	–	
3.1 Flammable liquid[3]		–	30[4 5]	–	–	30[4]	–	–	10[4]	–
		–	60[4 5]	–	–	60[4]	–	–	15[4]	–
		–	90[4 5]	–	–	90[4]	–	–	20[4]	–
Combination I-A, I-B, I-C		–	120[4 5 10]	–	–	120[4 10]	–	–	30[4 10]	–
4.1 Organic peroxide, unclassified detonable		1[5 8]	(1)[5 8]	–	¼[8]	(¼)[8]		¼[8]	(¼)[8]	–
4.2 Organic peroxide	I	5[4 5]	(5)[4 5]	–	(1)[4]	(1)[4]	–	1[4]	1[4]	–
	II	50[4 5]	(50)[4 5]	–	50[4]	(50)[4]	–	10[4]	(10)[4]	–
	III	125[4 5]	(125)[4 5]	–	125[4]	(125)[4]	–	25[4]	(25)[4]	–
	IV	500	(500)	–	500[4]	(500)	–	100	(100)	–
	V	N.L.	N.L.	–	N.L.	N.L.	–	N.L.	N.L.	–
4.3 Oxidizer	4	1[5 8]	(1)[5 8]	–	¼[8]	(¼)[8]	–	¼[8]	(¼)[8]	–
	3	10[4 5]	(10)[4 5]	–	2[4]	(2)[4]	–	2[4]	(2)[4]	–
	2	250[4 5]	(250)[4 5]	–	250[4]	(250)[4]	–	50[4]	(50)[4]	–
	1	1,000[4 5]	(1,000)[45]	–	1,000[4]	(1,000)[4]	–	200[4]	(200)[4]	–
4.1 Oxidizer—Gas										
(gaseous)		–	–	1,500[4 5]	–	–	1,500[4 5]	–	–	–
(liquefied)		–	15[4 5]	–	–	15[4 5]	–	–	–	–
5.1 Pyrophoric		4[5 8]	(4)[5 8]	50[5 8]	1[8]	(1)[8]	10[5 8]	0	0	0
6.1 Unstable (reactive)	4	1[5 8]	(1)[5 8]	10[5 8]	¼[8]	(¼)[8]	2[5 8]	¼[8]	(¼)[8]	0
	3	5[4 5]	(5)[4 5]	50[4 5]	1[4]	(1)[4]	10[4 5]	1[4]	(1)[4]	0
	2	50[4 5]	(50)[4 5]	250[4 5]	50[4]	(50)[4]	250[4 5]	10[4]	(10)[4]	0
	1	125[4 5]	(125)[4 5]	750[4 5]	125[4]	(125)[4]	750[4 5]	25[4]	(25)[4]	0
7.1 Water (reactive)	3	5[4 5]	(5)[4 5]	–	5[4]	(5)[4]	–	1[4]	(1)[4]	–
	2	50[4 5]	(50)[4 5]	–	50[4]	(50)[4]	–	10[4]	(10)[4]	–
	1	125[5 6]	(125)[5 6]	–	125[6]	(125)[5 6]	–	25[6]	(25)[6]	–

N.L. = Not Limited
[1] Control area is a space bounded by not less than a one-hour fire-resistive occupancy separation within which the exempted amounts of hazardous materials may be stored dispensed, handled or used. The number of control areas within a building used for retail and wholesale stores shall not exceed two. The number of control areas in buildings with other uses shall not exceed four.
[2] The aggregate quantity in use and storage shall not exceed the quantity listed for storage.
[3] The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters.
The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.
[4] Quantities may be increased 100 percent in sprinklered buildings. When Footnote 5 also applies, the increase for both footnotes may be applied.
[5] Quantities may be increased 100 percent when stored in approved storage cabinets or safety cans as specified in the fire code. When Footnote 4 also applies, the increase for both may be applied.
[6] The quantities permitted in a sprinklered building are not limited.
[7] A dust explosion potential is considered to exist if 1 pound or more of combustible dust per 1,000 cubic feet of volume is normally in suspension or on horizontal surfaces inside buildings or equipment and which could be put into suspension by an accident, sudden force or small explosion.
[8] Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.
[9] One pound of black sporting powder and 20 pounds of smokeless powder are permitted in sprinklered or unsprinklered buildings.
[10] Containing not more than the exempt amounts of Class I-A, Class I-B, and Class I-C flammable liquids.

TABLE NO.9-B—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS, LIQUIDS AND CHEMICALS REPRESENTING A HEALTH HAZARD MAXIMUM QUALTITIES PER CONTROL AREA [1 2]

When two units are given, values within parentheses are in pounds (Lbs)

MATERIAL	STORAGE[3]			USE[3]–CLOSED SYSTEMS			USE[3]–OPEN SYSTEMS		
	Solid Lbs. (Cu.Ft.)[5 6]	Liquid Gallons[5 6] (Lbs.)	Gas (Cu.Ft.)[5]	Solid (Lbs.)[5]	Liquid Gallons[5] (Lbs.)	Gas (Cu.Ft.)	Solid (Lbs.)[5]	Liquid Gallons[5] (Lbs.)	Gas (Cu.Ft.)
1. Corrosives	5,000	500	650[6]	5,000	500	650[5]	1,000	100	–
2. Highly Toxics[1]	1	(1)	20[7]	1	(1)	20[7]	(¼)	(¼)	–
3. Irritants	5,000	500	650[6]	5,000	500	650[5]	1,000	100	
4. Sensitizers	5,000	500	650[6]	5,000	500	650[5]	1,000	100	
5. Other Health Hazards	5,000	500	650[6]	5,000	500	650[5]	1,000	100	

[1] Control area is a space bounded by not less than a one-hour fire-resistive occupancy separation within which the exempted amounts of hazardous materials may be stored dispensed, handled or used. The number of control areas within a building used for retail and wholesale stores shall not exceed two. The number of control areas in buildings with other uses shall not exceed four.
[2] The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.
[3] The aggregate quantity in use and storage shall not exceed the quantity listed for storage.
[4] For carcinogenic and radioactive materials, see the Fire Code.
[5] Quantities may be increased 100 percent in sprinklered buildings. When Footnote 6 also applies, the increase for both footnotes may be applied.
[6] Quantities may be increased 100 percent when stored in approved storage cabinets or safety cans as specified in the fire code. When Footnote 5 also applies, the increase for both may be applied.
[7] Permitted only when stored in approved exhaust gas cabinets, exhausted enclosures or fume hoods.
[8] For special provisions, see the Fire Code.

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Figures

Tables

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Chapter 8.0 Personnel Training

Tables

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8.0 PERSONNEL TRAINING

This chapter discusses personnel training requirements based on WAC 173-303 and the Hanford Facility RCRA Permit, WA7890008967 (Permit). In accordance with WAC 173-303-806(4)(a)(xii), the *Hanford Facility Dangerous Waste Part B Permit Application* must contain two items: (1) "an outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the TSD facility in a safe manner as required to demonstrate compliance with WAC 173-303-330" and (2) "a brief description of how training will be designed to meet actual job tasks in accordance with the requirements in WAC 173-303-330(1)(d)." Permit Condition II.C (Personnel Training) contains training requirements applicable to Hanford Facility personnel and non-Facility personnel.

Compliance with these requirements at the 331-C Storage Unit is demonstrated by information contained in DOE/RL-91-28, Chapter 8.0 and this chapter.

8.1 OUTLINE OF INTRODUCTORY AND CONTINUING TRAINING PROGRAMS

The introductory and continuing training programs are designed to prepare personnel to manage and maintain the TSD unit in a safe, effective, and environmentally sound manner. In addition to preparing personnel to manage and maintain TSD units under normal conditions, the training programs verify that personnel are prepared to respond in a prompt and effective manner should abnormal or emergency conditions occur. Emergency response training is consistent with the description of actions contained in Chapter 7.0, Building Emergency Procedure. The introductory and continuing training programs contain the following objectives:

- Teach Hanford Facility personnel to perform their duties in a way that ensures the Hanford Facility's compliance with WAC 173-303
- Teach Hanford Facility personnel dangerous waste management procedures (including implementation of the contingency plan) relevant to the job titles/positions in which they are employed, and
- Verify that Hanford Facility personnel can respond effectively to emergencies.

8.1.1 Introductory Training

Introductory training includes general Hanford Facility training and TSD unit-specific training. General Hanford Facility training is described in DOE/RL-91-28, Chapter 8.0, and is provided in accordance with the Permit Condition II.C.2. TSD unit-specific training is provided to Hanford Facility personnel allowing those personnel to work unescorted, and in some cases is required for escorted access. Hanford Facility personnel cannot perform a task for which they are not properly trained, except to gain required experience while under the direct supervision of a supervisor or coworker who is properly trained. Hanford Facility personnel must be trained within 6 months after their employment at or assignment to the Hanford Facility, or to a new job title/position at the Hanford Facility, whichever is later.

General Hanford Facility training: Refer to description in DOE/RL-91-28, Chapter 8.0.

Contingency Plan training: Hanford Facility personnel receive training on applicable portions of the *Hanford Emergency Management Plan* (DOE/RL-94-02) in general Hanford Facility training. In addition, Hanford Facility personnel receive training on the content of the description of actions contained in contingency plan documentation in Chapter 7.0 to be able to effectively respond to emergencies.

Emergency Coordinator training: Hanford Facility personnel who perform emergency coordinator duties in WAC 173-303-360 (e.g., Building Emergency Director) in the Hanford Incident Command System receive training on implementation of the contingency plan and fulfilling the position within the Hanford Incident Command System. These Hanford Facility personnel must also become thoroughly familiar with applicable contingency plan documentation, operations, activities, location, and properties of all waste handled, location of all records, and the unit/building layout.

Operations training: Dangerous waste management operations training (e.g., waste designation training, shippers training) will be determined on a unit-by-unit basis and shall consider the type of waste management unit (e.g., container management unit) and the type of activities performed at the waste management unit (e.g., sampling). For example, training provided for management of dangerous waste in containers will be different than the training provided for management of dangerous waste in a tank system. Common training required for compliance within similar waste management units can be provided in general training and supplemented at the TSD unit. Training provided for TSD unit-specific operations will be identified in the training plan documentation based on (1) whether a general training course exists, (2) the training needs to verify waste management unit compliance with WAC 173-303, and (3) training commitments agreed to with Ecology.

8.1.2 Continuing Training

Continuing training meets the requirements for WAC 173-303-330(1)(b) and includes general Hanford Facility training and TSD unit-specific training.

General Hanford Facility training: Annual refresher training is provided for general Hanford Facility training. Refer to description in DOE/RL-91-28, Chapter 8.0.

Contingency plan training: Annual refresher training is provided for contingency plan training. Refer to description above in Section 8.1.1.

Emergency coordinator training: Annual refresher training is provided for emergency coordinator training. Refer to description above in Section 8.1.1.

Operations training: Refresher training occurs on many frequencies (i.e., annual, every other year, and every 3 years) for operations training. When justified, some training will not contain a refresher course and will be identified as a one-time only training course. The TSD unit-specific training plan documentation will specify the frequency for each training course. Refer to description above in Section 8.1.1.

8.2 DESCRIPTION OF TRAINING DESIGN

Proper design of a training program verifies that personnel who perform duties on the Hanford Facility related to WAC 173-303-330(1)(d) are trained to perform their duties in compliance with WAC 173-303. Actual job tasks, referred to as duties, are used to determine training requirements. The first step taken to verify that Hanford Facility personnel have received the proper training is to determine and document the waste management duties by job title/position. The second step compares waste management duties to the general waste management unit training curriculum. If the general waste management unit training curriculum does not address the waste management duties, the training curriculum is supplemented and/or on-the-job training is provided. The third step summarizes the content of a training course necessary to verify that the training provided to each job title/position addresses associated waste management duties. The last step is to assign training curriculum to Hanford Facility personnel based on the previous evaluation. The training plan documentation contains this process.

Waste management duties include those specified in Section 8.1 as well as those contained in WAC 173-303-330(1)(d). Training elements of WAC 173-303-330(1)(d) applicable to the 331-C Storage Unit operations include the following:

- Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment
- Communications or alarm systems
- Response to fires or explosions
- Shutdown of operations.

Hanford Facility personnel who perform these duties receive training pertaining to their duties. The training plan documentation described in Section 8.3 contains specific information regarding the types of training Hanford Facility personnel receive based on the outline in Section 8.1.

8.3 DESCRIPTION OF TRAINING PLAN

In accordance with Permit Condition II.C.3, the unit-specific portion of the *Hanford Facility Dangerous Waste Permit Application* must contain a description of the training plan. Training plan documentation is maintained outside of the *Hanford Facility Dangerous Waste Part B Permit Application* and the Permit. Therefore, changes made to the training plan documentation are not subject to the Permit modification process. However, the training plan documentation is prepared to comply with WAC 173-303-330(2).

Documentation prepared to meet the training plan consists of hard copy and/or electronic media as provided by Permit Condition II.C.1. The training plan documentation consists of one or more documents and/or a training database with all the components identified in the core document.

A description of how training plan documentation meets the three items in WAC 173-303-330(2) is as follows:

1. -330(2)(a): "The job title, job description, and name of the employee filling each job. The job description must include requisite skills, education, other qualifications, and duties for each position."

   Description: The specific Hanford Facility personnel job title/position is correlated to the waste management duties. Waste management duties relating to WAC 173-303 are correlated to training courses to verify that training is properly assigned.

   Only names of Hanford Facility personnel who carry out job duties relating to TSD unit waste management operations at the 331-C Storage Unit are maintained. Names are maintained within the training plan documentation. A list of Hanford Facility personnel assigned to the 331-C Storage Unit is available upon request.

   Information on requisite skills, education, and other qualifications for job title/positions are addressed by providing a reference where this information is maintained (e.g., human resources). Specific information concerning job title, requisite skills, education, and other qualifications for personnel can be provided upon request.

2. -330(2)(b): "A written description of the type and amount of both introductory and continuing training required for each position."

   Description: In addition to the outline provided in Section 8.1, training courses developed to comply with the introductory and continuing training programs are identified and described in the training plan documentation. The type and amount of training is specified in the training plan documentation as shown in Table 8.1.

3. -330(2)(c): "Records documenting that personnel have received and completed the training required by this section. The Department may require, on a case-by-case basis, that training records include employee initials or signature to verify that training was received."

Description: Training records are maintained consistent with DOE/RL-91-28, Chapter 8.0.

Table 8.1. 331-C Storage Unit Training Matrix

	Training Category[a]				
Attachment 33, General Information Portion, Chapter 8.0 Training (DOE/RL-91-28) Category	General Hanford Facility Training	Contingency Plan Training	Emergency Coordinator Training	Operations Training	
331-C Storage Unit	Orientation Program	Building Emergency Plan	Building Emergency Director Training	Advanced Waste Management Training	Container Management
Staff Position					
Technical Group Lead	X	X	X[1]	X	X
Hazardous Waste Operations Staff	X	X	X[b]	X	X

[1] Required for any staff that has been assigned the duties of Building Emergency Director or alternate.

(a) Refer to the Environmental Management Services Department Training Plan for a complete description of coursework in each training category.

(b) Required for any staff that has been assigned the duties of Building Emergency Director or alternate.

Chapter 11.0 Closure and Financial Assurance

Tables

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11.0 CLOSURE AND FINANCIAL ASSURANCE

This chapter is submitted in accordance with the requirements of WAC 173-303-806(4)(a)(xiii) to demonstrate that DOE-RL has developed a plan to ensure safe closure of the 331-C Storage Unit. In accordance with WAC 173-303-610, copies of the closure plan and all revisions will be maintained at 331-C Storage Unit until certification of closure completeness has been submitted and accepted by Ecology. A post-closure plan is not required because 331-C Storage Unit is not a land-based unit and all dangerous waste and dangerous waste residues will be removed at the time of closure.

11.1 CLOSURE PLAN/FINANCIAL ASSURANCE FOR CLOSURE

This plan presents the activities required for final closure of the 331-C Storage Unit at its maximum extent of operation. This closure plan is expected to be updated at closure to reflect integration with the River Corridor cleanup project. Partial closure will not be conducted. Closure activities are presented in sufficient detail such that the closure process is understandable and a closure schedule can be developed.

11.1.1 Closure Performance Standard

The following sections identify performance standards for clean closure of the 331-C Storage Unit.

11.1.1.1 Performance Standards for Soil/Environmental Media

Closure of the 331-C Storage Unit will be conducted in a manner that meets the clean closure performance standards of WAC 173-303-610(2)(a). The performance standards will be met by removing all dangerous waste inventory and by removing or decontaminating all structures and soil to clean closure removal or decontamination standards.

Due to the scope of operations of the 331-C Storage Unit and the preventive measures utilized during operations, releases from the unit that result in soil contamination are not expected. Should such releases result in soil contamination during the operating life of the 331-C Storage Unit, remediation of the contaminants of concern to the numeric cleanup levels prescribed by WAC 173-303-610(2)(b)(i) will be addressed in conjunction with operable unit remediation requirements under the 300-FF-2 Record of Decision and associated CERCLA documentation.

11.1.1.2 Structure Removal or Decontamination Standards

The clean closure removal and decontamination standards for structures, equipment, bases, liners, etc. have been established in accordance with WAC 173-303-610(2)(b)(ii).

The clean closure standard for structures is a visually verifiable standard established in accordance with WAC 173-303-610(2)(b)(ii). The standard is the absence of obvious stains or residues that would indicate potential dangerous waste contamination. Surfaces must be free of indications of potential dangerous waste, except for residual waste stains consisting of light shadows, slight streaks, or minor discoloration. The standard will be achieved through decontamination of all indoor and outdoor storage and loading area floor and pad surfaces. The standard will be verified by visual inspections performed and documented as described in Section 11.1.2.3.2. Only storage and loading area floor surfaces and some miscellaneous components that will remain after closure are expected to have the potential to have been contaminated by storage operations and these areas will be required to meet this standard.

11.1.2 Closure Activities

This plan identifies the steps necessary to perform final closure of the unit in order to meet the closure performance standards. Closure activities to achieve and verify clean closure of structures and soil (i.e., storage and loading area pads, floors, trenches, and sumps) are as follows.

- Remove all dangerous waste inventory
- Remove potentially contaminated storage building equipment and components for reuse

- Decontaminate storage building components and storage building and loading area floors, trenches, and sumps
- Visually inspect the decontaminated surfaces for achievement of the clean closure standard
- Sample any contaminated soil and compare results to clean closure standards for soil (not currently expected to be necessary)
- Certify that closure activities were completed in accordance with the approved closure plan.

11.1.2.1 Maximum Extent of Operations

The 331-C Storage Unit is used to store a variety of different research-related waste and is expected to be fully operational until closure (i.e. no partial closures of storage areas are expected). The maximum inventory of waste in storage at any time will be constrained by three factors:

- The total amount of dangerous waste in storage at 331-C Storage Unit at any time will not exceed the design capacity of 20,000 gallons (it is typically 2,000 to 5,000 gallons during normal operations)
- The total amount of any particular dangerous waste in storage during any given year will not exceed the amounts given in the Part A Form for 331-C Storage Unit (Chapter 1.0)
- The total amount of dangerous waste by hazard class in storage at any one time will not exceed Uniform Building Code Class B Hazardous Material Quantity Restrictions (Table 4.1).

Evidence of spills or leaks will be obtained through (a) review of spill reports and operating log books; (b) visual inspection of unit structures accessible to the environment (e.g., floors) and through inspection of all visible barriers designed to prevent migration to the environment, and (c) sampling, as necessary to characterize waste/debris that is found while performing visual inspection. If this inspection program indicates that contamination is present, the potential for migration of contamination to the environment will be evaluated. If potential migration appears likely, samples will be taken. In addition, if the inspections identify any potential contaminant migration routes (e.g., cracks in sumps), samples will be collected to determine whether migration has occurred. Waste site specific information discovered during facility closure will be updated in WIDS.

11.1.2.2 Removing Dangerous Wastes

Closure activities will be initiated by removal of the dangerous waste inventory present at 331-C Storage Unit at the time of closure. Inventory removal procedures will be identical to the waste handling, packaging, and manifesting activities associated with normal operation of the unit. All dangerous waste present will be placed into proper containers according to waste handling procedures described in Chapter 4 of this document. To the extent possible, chemicals will be labpacked or bulked into larger containers. If wastes are bulked, containers will be emptied in compliance with WAC 173-303-160 so that they are not dangerous waste. Labpack containers will be packaged in compliance with the requirements of WAC 173-303-161. All containers of dangerous waste will be manifested, and custody transferred to a dangerous waste transporter having a proper dangerous waste identification number. Waste will be transported to a permitted dangerous waste facility for treatment or disposal.

11.1.2.3 Decontaminating Structures, Equipment and Soil

The following sections describe decontamination and inspection activities for structures and miscellaneous building components that will remain after closure.

11.1.2.3.1 Waste Handling Equipment

No equipment will remain after closure that would require decontamination to meet clean closure levels. All portable waste handling equipment used for handling containers (e.g., barrel tongs, forklift truck, shelving, cabinets) will be decontaminated in the same manner as described in Section 11.1.2.3.3 below, removed and redeployed to other Hanford or PNNL operations.

11.1.2.3.2 Examination of Structure Surfaces

After waste inventory removal, but prior to beginning decontamination procedures, the unit surfaces will be inspected to identify any cracks or other openings through which dangerous waste or decontamination fluids might migrate. The inspections will determine which of the materials that will remain after closure already meet the clean closure standard of a "clean debris surface" and which materials require decontamination to meet the standard. A *"clean debris surface means the surface, that when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste, except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discoloration, and soils and waste in cracks, crevices and pits shall be limited to no more than 5% of each square inch of surface area." (40 CFR 268.45)*

Any cracks or openings in unit surfaces will be documented in the 331-C operating record and investigated to determine if releases of dangerous waste or dangerous waste constituents have occurred. If the potential exists for releases to have occurred, sampling will be required, in which case this closure plan will be amended to provide for the sampling and analysis process (Section 11.1.2.4). If no potential for releases is found, the cracks or openings will be repaired to prevent release of decontamination fluids and decontamination will proceed as described below.

11.1.2.3.3 Decontamination of Structures

Storage cell floors, sumps, trenches, and outdoor loading areas requiring decontamination will be cleaned using one or more of the removal technologies described in 40 CFR 268.45, as necessary to meet the "clean debris surface" criteria. Cleaning will be conducted so as to minimize the quantity of rinsates generated. Rinsates (if any) will be collected in trenches or sumps, pumped from the sumps into appropriate containers, and the pump triple rinsed. Rinsate collection locations will be cleaned and inspected last. Decontamination will be documented on a decontamination and inspection checklist (see next paragraph). All decontamination waste will be designated in accordance with WAC 173-303 and , if hazardous, managed in compliance with WAC 173-303-610(5). Decontamination waste requiring management as dangerous waste will be managed in a 90-day accumulation area established for the purpose and/or transported to a permitted TSD unit for storage pending disposal.

Inspection of materials for a "clean debris surface" will be documented on a checklist that will identify the area inspected, whether decontamination/treatment methods were implemented and the standard used to perform the inspection. If contamination above the clean surface debris criteria is found, the affected areas will be cleaned. Any contaminated material generated by this activity will be managed as described above.

Following completion of decontamination, another visual inspection will be performed to verify that decontamination is complete. The cleaned surfaces will be visually inspected for achievement of the clean closure standard described in Section 11.1.1.2 of no obvious stains or residues indicating potential dangerous waste contamination. The visual inspection will be documented on the checklist used to document the decontamination. When the visual standard is met, the structure will be considered clean. Copies of the completed visual inspection checklist(s) will be placed in the 331-C Storage Unit Operating Record.

11.1.2.3.4 Decontamination and Inspection of Miscellaneous Building Components

Grating over trenches of the indoor areas and the outdoor loading pads will be cleaned by high-pressure/low-volume steam or water spray, or will be cleaned by hand using rags, brushes, water, and an appropriate cleaner, if necessary. Rinsate and decontamination materials will be collected, designated, and managed accordingly. Decontamination will be documented on a decontamination and inspection checklist. The grating will be inspected for achievement of the clean closure standard and the inspection documented on the checklist used to document the decontamination.

11.1.2.4 Sampling and Analysis to Identify Extent of Decontamination/Removal and to Verify Achievement of Closure Standard

No sampling and analysis of environmental samples (soil or other materials) is expected to be required due to the preventive measures in place during the operating life of the 331-C Storage Unit. If environmental media are contaminated during operation of the 331-C Storage Unit, this plan will be revised to identify methods for sampling and analysis of such media. Decontamination of hazardous debris will be conducted in accordance with the procedures given in Section 11.1.2.3. The results of this examination will be documented on a decontamination and inspection checklist. Any necessary sampling and analysis will be conducted in accordance with a sampling and analysis plan to be developed according to Ecology's Clean Closure Guidance (Publication 94-111, current version).

11.1.2.5 Other Activities

Within 60 days of completion of the final closure activities described in this plan, a certification of closure will be submitted to Ecology. This certification will indicate that the 331-C Storage Unit has been closed as described in this plan and that the closure performance standard given in Section 11.1 has been met. The certification will be submitted by registered mail and will be signed by the Permittees and an independent Professional Engineer registered in the State of Washington as described below.

The Permittees will certify with the following document or a document similar to it:

> *I, (name), an authorized representative of the U.S. Department of Energy-Richland Operations Office located at the Federal Building, 825 Jadwin Avenue, Richland, Washington, hereby state and certify that the 331-C Storage Unit at the 300 Area, to the best of my knowledge and belief, has been closed in accordance with the attached approved closure plan, and that the closure was completed on (date).*
>
> (Signature and date)

The Permittees will engage an independent Professional Engineer registered in the State of Washington to inspect closure activities, to verify that closure activities are being conducted according to this plan, and to certify that closure has been performed in accordance with this plan.

The engineer will inspect the 331-C Storage Unit at least weekly while closure activities are being performed. During these inspections the engineer will observe closure activities to determine whether they are being performed according to this plan. Inspections will include, but not be limited to:

- Inspection of dangerous waste containment structures and systems to determine whether releases of waste to the environment have occurred
- Verification that the dangerous waste inventory has been removed within 90 days of receipt of the last waste shipment
- Inspection of manifests and Operating Record to verify that these waste were disposed of in compliance with WAC 173-303
- Inspection of decontamination operations to verify that they are being performed using the procedures described in this plan
- Inspections of the Operating Record to verify that samples of liquid decontamination waste were collected and analyzed using the procedures described in this plan
- Inspection of the Operating Record to verify that decontamination waste were properly managed in accordance with the requirements of WAC 173-303-610(5).

Inspections by the engineer will be documented in a bound notebook. Notations will include the date and time of the inspection, the areas inspected, the activities inspected, applicable closure plan requirements inspected, status of observed activities with respect to plan requirements, corrective actions required

status of past corrective actions, and name and signature of inspector. This inspection notebook will be made available to Ecology upon request.

Upon completion of closure according to the plan, the Permittees will require the engineer to sign the following document or a document similar to it:

> *I, (name), a registered Professional Engineer, hereby certify, to the best of my knowledge and belief, that I have made visual inspection(s) of the 331-C Storage Unit at the 300 Area and that closure of the aforementioned unit has been performed in accordance with the attached approved closure plan.*
>
> (Signature, date, state Professional Engineer license number, business address, and phone number.)

No other activities are expected to be necessary for clean closure.

11.1.3 Maximum Waste Inventory

The maximum waste inventory for the 331-C Storage Unit will not exceed 20,000 gallons, as described in Chapter 1.0. The inventory will consist of the waste types described in Chapter 1.0.

11.1.4 Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment Facilities, and Miscellaneous Units

This section is not applicable to the 331-C Storage Unit because wastes are not managed in these types of units.

11.1.5 Closure of Landfill Units

This section is not applicable to the 331-C Storage Unit because it does not contain any landfill units and will not be closed as a dangerous waste landfill unit.

11.1.6 Schedule for Closure

When closure begins, the inventory of dangerous waste will be removed within 90 days from receipt of the final volume of waste. All closure activities will be completed within 180 days of receipt of the final volume of waste. Ecology will be notified by DOE-RL at least 45 days before the final closure activities are begun. Closure activities are summarized in Table 11.1. A detailed schedule of closure activities is provided in Table 11.2.

11.1.7 Extension for Closure Time

The inventory of dangerous waste will be removed from the 331-C Storage Unit within 90 days of receipt of the last volume of waste. The closure activities described in this plan will be completed within 180 days of receipt of the final volume of waste. No extension to the time frame for initiation and completion of closure is currently expected to be necessary. Extensions to the time frames for closure would only be necessary if unexpected conditions were encountered during closure of the unit. If it becomes apparent that all waste cannot be removed within 90 days, Ecology will be so notified at least 30 days prior to expiration of the 90-day period. This notification will demonstrate why more than 90 days is required for removal of the waste and will demonstrate that steps have been taken to prevent threats to human health and the environment and that the unit is in compliance with applicable permit standards. If it becomes apparent that closure cannot be completed within 180 days after approval of this plan, Ecology will be so notified at least 30 days prior to expiration of the 180-day period. This notification will demonstrate why more than 180 days is required for closure and will demonstrate that steps have been taken to prevent threats to human health and the environment and that the unit is in compliance with applicable permit standards.

11.1.8 Closure Cost Estimate

The Hanford Facility is not required to comply with the financial assurance requirements in WAC 173-303-620 based upon Permit Condition II.H.

11.1.9 Financial Assurance Mechanism for Closure

The Hanford Facility is not required to comply with the financial assurance requirements in WAC 173-303-620 based upon Permit Condition II.H.

11.2 NOTICE IN DEED

This section is not applicable because the 331-C Storage Unit is not expected to be closed as a dangerous waste disposal unit.

11.3 POSTCLOSURE PLAN

This section and subsequent subsections are not applicable because the 331-C Storage Unit is expected to be clean closed, not as a land-based unit.

11.4 LIABILITY REQUIREMENTS

The Hanford Facility is not required to comply with the financial assurance requirements in WAC 173-303-620 based upon Permit Condition II.H.3.

Table 11.1. Summary of Closure Activities

Closure Activity Description	Expected Duration
Receipt of final volume of dangerous waste	N/A
Notify EPA and Ecology that closure will begin	30 days
Remove waste inventory – package all dangerous waste, manifest, and transfer to permitted facility for further storage, treatment and/or disposal	45 days
Decontaminate structural surfaces and equipment.	55 days
Analyze decontamination waste to determine proper methods of treatment/disposal	25 days
Dispose of decontamination waste based on results of waste analysis	20 days

Table 11.2. Detailed Schedule of Closure

Action	Schedule
Pre-Closure Activities	
Date of receipt of last volume of waste	Day 0
Notify EPA and Ecology	Day 30
Closure Activities	
Removal of Waste Inventory	Day 75
Removal of equipment and components	Day 95
Decontamination of Unit	Day 130
Management of Decontamination Waste	
Waste Analysis	Day 155
Waste Disposal	Day 175
Other Activities	
Certification of Closure to Ecology	Day 215

PART I									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
I.A.	EFFECT OF PERMIT								
I.A.1.		*	*	*	*	*	*	*	
I.A.2.		*	*	*	*	*	*	*	
I.A.3.		*	*		*	*	*	*	
I.A.4.	Coordination with the FFACO		*		*	*	*	*	
I.B.	PERSONAL AND PROPERTY RIGHTS		*		*	*	*	*	
I.C.	PERMIT ACTIONS								
I.C.1.	Modification, Revocation, Reissuance, or Termination		*		*	*	*	*	
I.C.2.	Filing of a Request		*		*	*	*	*	
I.C.3.	Modifications		*		*	*	*	*	
I.D.	SEVERABILITY								
I.D.1.	Effect of Invalidation		*		*	*	*	*	
I.D.2.	Final Resolution		*		*	*	*	*	
I.E.	DUTIES AND REQUIREMENTS								
I.E.1.	Duty to Comply		*		*	*	*	*	
I.E.2.	Compliance Not Constituting Defense		*		*	*	*	*	
I.E.3.	Duty to Reapply		*		*	*	*	*	
I.E.4.	Permit Expiration & Continuation		*		*	*	*	*	
I.E.5.	Need to Halt or Reduce Activity Not a Defense		*		*	*	*	*	
I.E.6.	Duty to Mitigate		*		*	*	*	*	
I.E.7.	Proper Operation & Maintenance		*			*	*	*	
I.E.8.	Duty to Provide Information		*		*	*	*	*	
I.E.9.	Inspection & Entry		*		*	*	*	*	
I.E.9.a.			*		*	*	*	*	
I.E.9.b.			*		*	*	*	*	
I.E.9.c.			*		*	*	*	*	
I.E.9.d.			*		*	*	*	*	
I.E.10.	Monitoring & Records								
I.E.10.a.			*		*	*	*	*	
I.E.10.b.			*		*	*	*	*	
I.E.10.c.			*		*	*	*	*	
I.E.10.d.			*		*	*	*	*	
I.E.10.e.			*		*	*	*	*	

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land
B. North Slope and ALE
C. Interim Status TSD Units
Areas Between TSDs (excluding A and B)
D. TSD Unit Closures (in Part V)
E. TSD Operating Units (in Part III)
F. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

1 – For Category B, Part I Conditions only apply if future TSD activities are begun on the North Slope or ALE.
2 – For Category C, all Part I Conditions apply to activities subject to Conditions II.U. and II.V.
3 – For Category D, Part I Conditions only apply to activities subject to Conditions II.A., II.C., II.D.4., II.G., II.I., II.L.3., II.O., II.Q., II.S., II.T., II.X., and II.Y.

PART I									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
I.E.11.	Reporting Planned Changes		*			*	*	*	
I.E.12.	Certification of Construction or Modification		*				*		
I.E.12.a			*				*		
I.E.12.b			*				*		
I.E.12.c			*				*		
I.E.12.d			*				*		
I.E.13.	Anticipated Noncompliance		*		*	*	*	*	
I.E.14.	Transfer of Permits		*			*	*	*	
I.E.14.a			*			*	*	*	
I.E.14.b			*			*	*	*	
I.E.15.	Immediate Reporting								
I.E.15.a.			*		*	*	*	*	
I.E.15.b.			*		*	*	*	*	
I.E.15.c.			*		*	*	*	*	
I.E.15.d.			*		*	*	*	*	
I.E.15.e.			*		*	*	*	*	
I.E.16.	Written Reporting		*		*	*	*	*	
I.E.17.	Manifest Discrepancy Report								
I.E.17.a.			*			*	*	*	
I.E.17.b.			*		*	*	*	*	
I.E.18.	Unmanifested Waste Report		*			*	*	*	
I.E.19.	Other Noncompliance		*		*	*	*	*	
I.E.20.	Other Information		*		*	*	*	*	
I.E.21.	Reports, Notifications, & Submissions		*		*	*	*	*	
I.E.22.	Annual Report		*		*	*	*	*	
I.F.	SIGNATORY REQUIREMENT		*		*	*	*	*	
I.G.	CONFIDENTIAL INFORMATION		*		*	*	*	*	
I.H.	DOCUMENTS TO BE MAINTAINED AT FACILITY SITE		*		*	*	*	*	

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A. Leased Land
B. North Slope and ALE
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D. TSD Unit Closures (in Part V)
E. TSD Operating Units (in Part III)
F. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

1 – For Category B, Part I Conditions only apply if future TSD activities are begun on the North Slope or ALE.
2 – For Category C, all Part I Conditions apply to activities subject to Conditions II.U. and II.V.
3 – For Category D, Part I Conditions only apply to activities subject to Conditions II.A., II.C., II.D.4., II.G., II.I., II.L.3., II.O., II.Q., II.S., II.T., II.X., and II.Y.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.A.	FACILITY CONTINGENCY PLAN								
II.A.1.					*	*	*	*	For Category D, II.A Conditions only apply to releases of hazardous substances that threaten human health or the environment.
II.A.2.					*	*	*	*	
II.A.3.					*	*	*	*	
II.A.4.					*	*	*	*	
II.B.	PREPAREDNESS AND PREVENTION								
II.B.1.						*	*		
II.B.2.						*	*		
II.B.3.						*	*		
II.B.4.						*	*		
II.B.5						*	*		
II.C.	PERSONNEL TRAINING								
II.C.1.						*	*	*	
II.C.2.					*	*	*	*	
II.C.2.a.					*	*	*	*	
II.C.2.b.					*	*	*	*	
II.C.2.c.					*	*	*	*	
II.C.2.d.					*	*	*	*	
II.C.2.e.					*	*	*	*	
II.C.3.						*	*	*	
II.C.4.					*	*	*	*	For Category D, Condition II.C.4 will not apply to unrestricted (publicly accessible) areas.
II.D.	WASTE ANALYSIS								
II.D.1.						*	*	*	
II.D.2.						*	*	*	
II.D.3.						*	*	*	
II.D.4.					*				

CATEGORIES ARE DEFINED AS FOLLOWS:

A. Leased Land
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D. TSD Unit Closures (in Part V)
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F. TSD Units in Post-Closure/Modified Closure (in Part VI)

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PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.E.	QUALITY ASSURANCE/ QUALITY CONTROL								
II.E.1.						*	*	*	
II.E.2.						*	*	*	
II.F.	GROUND WATER AND VADOSE ZONE MONITORING					*	*	*	
II.F.1.	Purgewater Management					*	*	*	
II.F.2.	Well Remediation and Abandonment					*	*	*	
II.F.2.a.						*	*	*	
II.F.2.b.						*	*	*	
II.F.2.c.						*	*	*	
II.F.2.d.						*	*	*	
II.F.3.	Well Construction					*	*	*	
II.G.	SITING CRITERIA				*		*		For Category D, Condition II.G only applies if a new TSD unit is to be sited.
II.H. II.I.	RECORDKEEPING AND REPORTING FACILITY OPERATING RECORD								For Category D, II.I Conditions only apply to activities subject to this Permit as defined by this matrix. For Category E, Condition applicability to be specified in Part V. Condition II.I only applies to existing records and records prepared after the date of Permit issuance.
II.I.1.		*	*		*	*	*	*	
II.I.1.a.		*	*		*	*	*	*	
II.I.1.b.							*	*	
II.I.1.c.					*	*	*	*	
II.I.1.d.						*	*	*	
II.I.1.e.			*		*				

CATEGORIES ARE DEFINED AS FOLLOWS:

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Areas Between TSDs (excluding A and B)
D. TSD Unit Closures (in Part V)
E. TSD Operating Units (in Part III)
F. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.I.1.f.					*	*	*	*	
II.I.1.g.						*	*	*	
II.I.1.h.	Condition Reserved								
II.I.1.i.						*	*	*	
II.I.1.j.						*	*	*	
II.I.1.k.					*	*	*	*	
II.I.1.l.	Condition Reserved								
II.I.1.m.						*	*	*	
II.I.1.n.					*	*	*	*	
II.I.1.o.	Condition Reserved								
II.I.1.p.			*		*	*	*	*	
II.I.1.q.			*		*	*	*	*	
II.I.1.r.					*	*	*	*	
II.I.1.s.					*	*	*	*	
II.I.1.t.					*	*	*	*	
II.J.	FACILITY CLOSURE								
II.J.1.						*	*	*	
II.J.2.						*	*	*	
II.J.3.						*	*	*	
II.J.4.						*	*	*	
II.J.4.a.						*	*	*	
II.J.4.b.						*	*	*	
II.J.4.c.						*	*	*	
II.J.4.d.						*	*	*	
II.K.	SOIL/GROUND WATER CLOSURE PERFORMANCE STANDARDS								
II.K.1.						*	*	*	
II.K.2.						*	*	*	
II.K.3.						*	*	*	
II.K.3.a.						*	*	*	
II.K.3.b.						*	*	*	
II.K.3.c.						*	*	*	
II.K.4.						*	*	*	
II.K.5.						*	*	*	
II.K.6.						*	*	*	
II.K.7.						*	*	*	

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Areas Between TSDs (excluding A and B)
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E. TSD Operating Units (in Part III)
F. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.L.	DESIGN AND OPERATION OF FACILITY								
II.L.1.	Proper Design and Construction					*	*	*	
II.L.2.	Design Changes, Nonconformance and as-built Drawings					*	*	*	Condition II.L.2, applies to Categories E & G only if it is a landfill closure.
II.L.2.a.						*	*	*	
II.L.2.b.						*	*	*	
II.L.2.c.						*	*	*	
II.L.2.d.						*	*	*	
II.L.2.e	Facility Compliance				*	*	*	*	
II.M.	SECURITY					*	*	*	
II.N.	RECEIPT OF DANGEROUS WASTES GENERATED OFF-SITE								
II.N.1.	Receipt of Off-Site Waste						*		
II.N.2.	Waste From Sources Outside the U.S.						*		
II.N.3.	Notice to Generator						*		
II.O.	GENERAL INSPECTION REQUIREMENTS								
II.O.1.					*	*	*	*	
II.O.1.a.					*				
II.O.1.b.					*				
II.O.1.c.					*				
II.O.1.d.					*				
II.O.2.					*	*	*	*	
II.O.3.					*	*	*	*	
II.P.	MANIFEST SYSTEM								
II.P.1.						*	*	*	
II.P.2.						*	*	*	
II.Q.	ON-SITE TRANSPORTATION								
II.Q.1.					*	*	*	*	
II.Q.2.					*	*	*	*	
II.R.	EQUIVALENT MATERIALS								
II.R.1.						*	*	*	
II.R.2.						*	*	*	
II.R.3.						*	*	*	
II.S.	LAND DISPOSAL RESTRICTIONS				*	*	*	*	

CATEGORIES ARE DEFINED AS FOLLOWS:

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D. TSD Unit Closures (in Part V)
E. TSD Operating Units (in Part III)
F. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.T.	ACCESS AND INFORMATION				*	*	*	*	
II.U.	MAPPING OF UNDERGROUND PIPING								
II.U.1.	Reserved								
II.U.2.	Reserved								
II.U.3.				*		*	*	*	
II.U.4.				*		*	*	*	
II.V.	MARKING OF UNDERGROUND PIPING			*		*	*	*	
II.W.	OTHER PERMITS AND/OR APPROVALS								
II.W.1.						*	*	*	
II.W.2.						*	*	*	
II.W.3.						*	*	*	
II.X.	SCHEDULE EXTENSIONS								
II.X.1.				*	*	*	*	*	Condition II.X, only applies to Category C if activities are subject to Conditions II.U, and II.V.
II.X.2.				*	*	*	*	*	Condition II.X, only applies to Category D if activities are subject to this Permit as defined by this matrix.
II.Y.	CORRECTIVE ACTION	*	*	*	*	*	*	*	
II.Y.1.	Compliance with Chapter 173-340 WAC	*	*	*	*	*	*	*	
II.Y.1.a.		*	*	*	*	*	*	*	
II.Y.1.b.		*	*	*	*	*	*	*	
II.Y.1.c.		*	*	*	*	*	*	*	
II.Y.1.d.		*	*	*	*	*	*	*	
II.Y.1.e.		*	*	*	*	*	*	*	
II.Y.1.f.		*	*	*	*	*	*	*	
II.Y.1.g.		*	*	*	*	*	*	*	
II.Y.2.	Acceptance of Work Under Other Authorities or Programs and Integration with the FFACO	*	*	*	*	*	*	*	
II.Y.2.a.		*	*	*	*	*	*	*	
II.Y.2.b.		*	*	*	*	*	*	*	

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B. North Slope and ALE
C. Interim Status TSD Units
Areas Between TSDs (excluding A and B)
D. TSD Unit Closures (in Part V)
E. TSD Operating Units (in Part III)
F. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

PART II									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
II.Y.2.c.		*	*	*	*	*	*	*	
II.Y.2.d.		*	*	*	*	*	*	*	
II.Y.3.	Releases of Dangerous Waste or Dangerous Constituents Not Covered by the FFACO	*	*	*	*	*	*	*	
II.Y.3.a.	U.S. Ecology	*	*	*	*	*	*	*	
II.Y.3.b.	Newly Identified Solid Waste Management Units and Newly Identified Releases of Dangerous Waste or Dangerous Waste Constituents	*	*	*	*	*	*	*	
II.Z	WASTE MINIMIZATION								
II.Z.1							*		
II.Z.1.a							*		
II.Z.1.b							*		
II.Z.2							*		
II.AA	AIR EMISSION STANDARDS FOR PROCESS VENTS						*		
II.BB	AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS						*		
II.CC	AIR EMISSION STANDARDS FOR TANKS, SURFACE IMPOUNDMENTS, AND CONTAINERS						*		

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PART III									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
III.	UNIT SPECIFIC CONDITIONS FOR FINAL STATUS OPERATIONS								
III.2.A.	**305-B Storage Facility** Compliance with Approved Permit						*		
III.2.B.	Amendments to the Approved Permit						*		
III.3.A.	**PUREX Storage Tunnels** Compliance with Approved Permit						*		
III.3.B.	Amendments to the Approved Permit						*		
III.4.A.	**Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility** Compliance with Approved Permit						*		
III.4.B.	Amendments to the Approved Permit						*		
III.5.A.	**242-A Evaporator** Compliance with Approved Permit						*		
III.5.B.	Amendments to the Approved Permit						*		
III.6.A.	**325 Hazardous Waste Treatment Units** Compliance with Approved Permit						*		
III.6.B.	Amendments to the Approved Permit						*		
III.10.A	**Waste Treatment and Immobilization Plant** Compliance with Approved Permit						*		
	Amendments to the Approved Permit						*		
III.11.A.	**Integrated Disposal Facility** Compliance with Approved Permit						*		
	Amendments to the Approved Permit						*		
III.15.A.	**331-C Storage Unit** Compliance with Approved Permit						*		
III.15.B	Amendments to the Approved Permit						*		

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E. TSD Operating Units (in Part III)
F. TSD Units in Post-Closure/Modified Closure (in Part VI)

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PART IV									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
IV.	UNIT SPECIFIC CONDITIONS FOR CORRECTIVE ACTION								
IV.1.A.	**100-NR-1 Operable Unit** Compliance with Approved Corrective Measures Study				*	*			
IV.2.A	**100-NR-2 Operable Unit** Compliance with Approved Corrective Measures Study				*	*			

PART V									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
V.	UNIT SPECIFIC CONDITIONS FOR UNITS UNDERGOING CLOSURE								
V.16.A.	**1325-N Liquid Waste Disposal Facility** Compliance with Approved Modified Closure Plan					*			
V.17.A.	**1301-N Liquid Waste Disposal Facility** Compliance with Approved Modified Closure Plan					*			
V.18.A.	**1324-N Surface Impoundment** Compliance with Approved Modified Closure Plan					*			
V.19.A.	**1324-NA Surface Impoundment** Compliance with Approved Modified Closure Plan					*			
V.20.A	**300 Area Waste Acid Treatment System**					*			
V.20.B	Unit Specific Condition for 300 Area WATS					*			
V.21.A	**Plutonium Finishing Plant Treatment Unit, Glovebox HA-20 MB**					*			
V.22.A	**241-Z Treatment and Storage Tanks**					*			

PART VI									
CONDITION		CATEGORY							QUALIFIERS
PART	TITLE	A	B	C	D	E	F	G	
VI.	UNIT SPECIFIC CONDITIONS FOR UNITS IN POST-CLOSURE								
VI.1.A	**300 Area Process Trenches** Compliance with Approved Modified Closure Plan							*	
VI.1.B	Amendments to the Approved Modified Closure Plan							*	
VI.2.A	**183-H Solar Evaporation Basins** Compliance with Approved Modified Closure Plan							*	
VI.2.B	Amendments to the Approved Post- Closure Plan							*	

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